sputnik

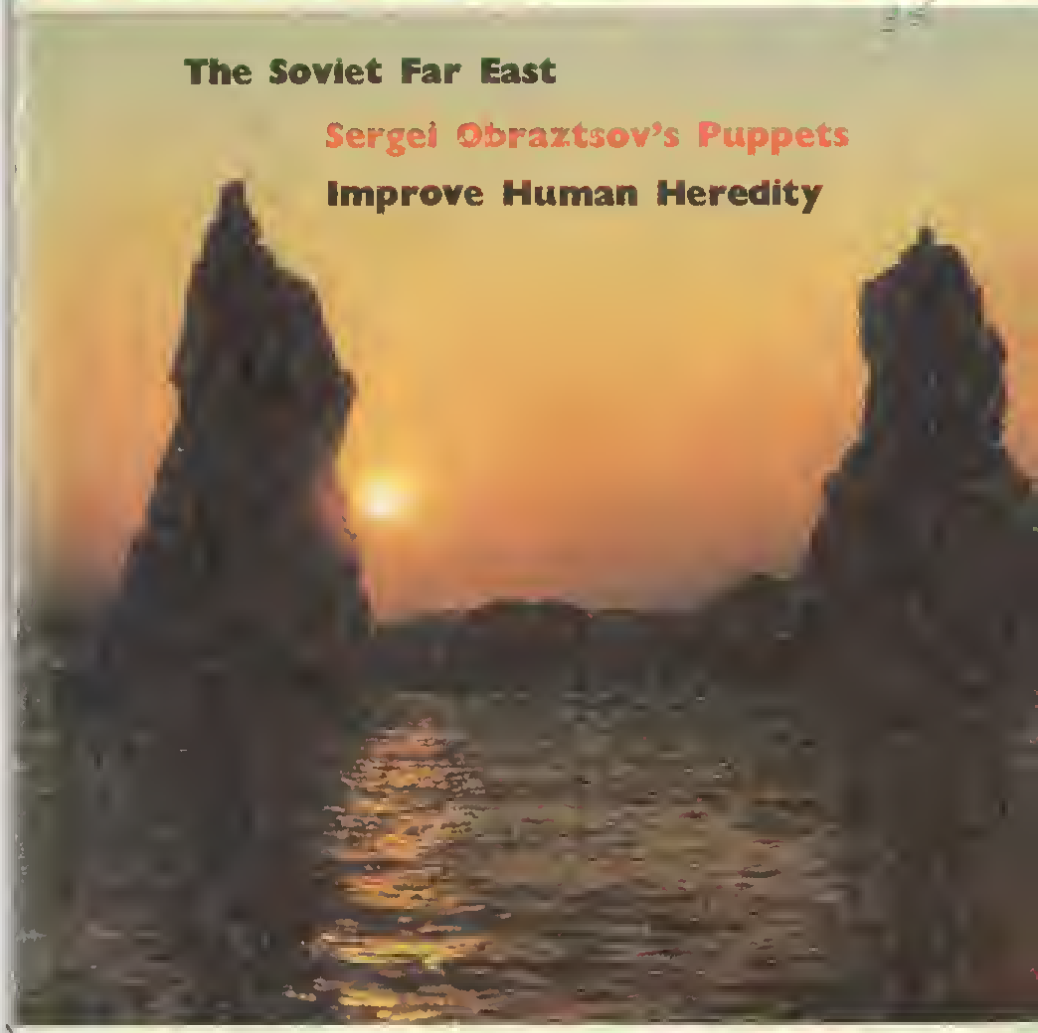
MONTHLY DIGEST

1971 August 8

The Soviet Far East

Sergei Obraztsov's Puppets

Improve Human Heredity



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APN, 2 PUSHKIN SQUARE,
MOSCOW, U.S.S.R.
Sputnik is a digest published in English, French, German and Russian by the Novosti Press Agency.

SPUTNIK, the first Soviet digest, will be on the newsstands — or in your mailbox — every month. To be fully informed, read SPUTNIK, the digest magazine that reaches every aspect of Soviet life. Exciting reading for everyone in SPUTNIK: condensed articles by writers, poets, scientists, military experts, sport stars. Everybody from statesmen to the man in the street. Know the other side of controversial issues, meet the Soviet man in the street (women and children treated differentially), keep abreast of scientific developments, get an inside line on sports, etc.

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SPUTNIK: read — be informed! We welcome your questions, comments and suggestions which will be reported in the Letters Section of **SPUTNIK**.

Sincerely,
The Editors

Front Cover:
The Far East.
The "Two Brothers" Rocks (see pp. 58—85).
Photo by
Yuri Somov,
Ivan Denisenko.

PHOTO AND PICTURE CREDITS

Sergei Kosyrev p. 4; Yefim Verlotsky pp. 34, 48, 57, 128, 145; Igor Zotin p. 35; Alexei Zhigailov p. 42; Alevtina Levina pp. 51-54; Boris Korobeinikov, Varfolomei Teterin pp. 58-85; Ilya Moskvitin p. 86; Vladimir Minkevich, Alexander Neveshin pp. 89-108; Alexander Cherenkov p. 109; Lev Nosov pp. 151-154; Konstantin Moshkin pp. 168, 173; Ivan Budnevich, Yuri Kuidin inside back cover.

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YHTEISTYÖ · HELSINKI, FINLAND

Letters to the Editor

I think you should write more about the Soviet autonomous republics.

Uwe van de Weyer, Bad Langensalza, German Democratic Republic

You used to publish illustrated articles about the art treasures in the museums of the Soviet Union. Now such articles appear less and less often. Surely you don't think you have exhausted the subject?

I should also like to ask whether the autonomous republics of the Soviet Union have their own flags and coats-of-arms, and if so, what they look like. I think other people, too, would be interested to know more about individual republics, presented in articles of the type of "Where the Ground Never Thaws" (May 1967) and "Chukotka: Life and Letters" (January 1970). Personally I am most interested in material about Siberia and the Arctic.

Stanislaw Polanica, Warsaw, Poland

An autonomous Soviet socialist republic (ASSR) is a Soviet socialist national state existing within a union republic on a basis of political autonomy.

On its own territory an ASSR has wide powers in all economic, political and cultural matters. Each republic has its own constitution and laws which reflect its own specifically

Continued on p. 150

DELEGATES TO THE TWENTY-FOURTH CONGRESS OF THE CPSU

GRIGORI GORBAN, Steel Worker

"There is a wider representation than ever before of our Soviet working class, which has to play the leading role in the struggle to build communism", I. Kapitonov, chairman of the Credentials Commission of the Twenty-Fourth Congress of the CPSU, said in his report. "Altogether 1,195 workers from various branches of industry, construction and transport have been elected to the Congress . . . Among the delegates is one of the finest steel-smelters in the country, Grigori Gorban."

An article about Grigori Gorban appears on p 6.

MSTISLAV KELDYSH, President of the Academy

"Among the delegates are 96 academicians and corresponding members of the USSR Academy of Sciences, academies for various fields of endeavour, and academies of sciences for union republics, 363 doctors and masters of science, 138 staff members of scientific institutions and higher schools of the country. Present were 120 people working in the spheres of culture and education," the report of the Credentials Commission went on to say. "Among the delegates were also such eminent men of science and culture as Mstislav Keldysh."

An article about Mstislav Keldysh appears on p 7.

GRIGORI GORBAN, Steel Worker

Grigori Gorban is a steel-smelter at the Azovstal works in Zhdanov, the Donets basin (Ukraine). He came to the works in 1955, when he was 23, and was taken on as a trainee. After going through a good practical school in the team of Nikolai Pereverzev, renowned throughout the Donets basin for his skill, Gorban eventually mastered the art of steel-smelting as well as his teacher. Before long he was a team-leader himself and had two assistants. The regional committee of the steel workers' union awarded him their "Golden Hands" title, and the Ministry of Iron and Steel conferred on him the title of "Honoured Steel Worker".

While continuing at his job Gorban finished his secondary education at a technical school. He would come home after the shift and sit down with his textbooks. At this stage he could spend little time with his wife and three children. But he gained the knowledge he needed to cope with the constantly improving equipment and to play his part in devising better production methods.

The open-hearth furnace shop where Gorban works has in the past few years undergone virtual reconstruction. The furnaces have been converted to natural gas, oxygen blast has been introduced, furnace productivity has been raised and conditions of work have been improved. Gorban's team fulfilled its five-year plan ahead of time, producing 8,500 tons of metal above quota. It has been awarded the title "Communist Labour Team".

Grigori Gorban is known not only as a specialist. He has won universal respect as a Communist with outstanding organisational ability. Some years ago he was elected a member of the Cetral Committee of the Ukrainian Communist Party.

One can with reason apply to Grigori Gorban the words of L. Brezhnev in the Report of the Central Committee to the Party's Twenty-Fourth Congress: "Today there is a steadily growing number of workers who have completely mastered their trade and who, having a secondary education, are continuing their studies and mastering the advanced achievements of science and culture. As a rule, these workers are politically active and they regard the interests of their enterprise and the entire country as their own. The entire mass of Soviet working people look to these workers as models and it is only natural that in recent years the stratum of workers has been steadily growing in the Communist Party, and the number of representatives of the working class has been increasing in the Soviets of Working People's Deputies and in our public organisations."

Dr. KELDYSH the All-Rounder

by Dr. Boris Paton,
President of the Ukrainian Academy of Sciences and Member of the USSR Academy of Sciences

from the weekly NEDELYA

A leading authority on mathematics and mechanics, Dr. Mstislav Keldysh is more than a scientist. President of the USSR Academy of Sciences for ten years now, Mstislav Vsevolodovich Keldysh is an **organiser,** having done a great deal of valuable organisational work for Soviet science. In addition to this, Dr. Keldysh is chairman of the Council Coordinating Scientific Research conducted by the Academies of Sciences of the Constituent Soviet Republics and of the Soviet Government Committee for Lenin and State Prizes in Science and Technology and takes a most active part in the work of many scientific councils and societies. A **political figure and statesman,** the President is a member of the Central Committee of the USSR Communist Party and a member of the Supreme Soviet of the USSR.

On February 10, 1971, Dr. Keldysh celebrated his 60th birthday. Here follows an abridged version of an article published on that occasion by the weekly **Nedelya.**

* * *

They say the only way one can really get to know a man is to work with him on some difficult task which is vital to you. At any rate, I got to know the President of the USSR Academy of Sciences most fully when he came to the Ukraine to see what we were doing, to criticise us and to help us.

Mstislav Vsevolodovich Keldysh inspected our science centres in Lvov, Donetsk, Kharkov, Dnepropetrovsk, Sevastopol, Uzhgorod and Kiev. A tour like that is quite usual for the President: Dr. Keldysh is always making trips to the republican academies, he keeps track of developments in science all over the country, so he can without delay help any scientific centre to tackle new problems along the right lines.

Of the great mass of information which unavoidably confronts visitors to research institutes Dr. Keldysh quickly sifts away all inessentials but exhibits a great interest when he enters into the smallest details of some really new line of research. He is quick to ferret out defects in conclusions, if there are any, he puts forward counter-suggestions and gives competent advice: he of all people is able to get hold of the right end of the stick, as Sir

Joseph Thomson, the distinguished British physicist, put it.

What is it that enables. Dr. Keldysh to come rapidly to the assistance of another scientist engaged in research of his own? Erudition? That is undeniable. But where does he get it from? It is more than inherent talent and a good memory. A tremendous role is played by his incredible inquisitiveness and inexhaustible energy.

While on a tour of inspection, Dr. Keldysh rises before 6 in the morning, when all offices are still closed and there is no traffic in the streets, and walks through the unfamiliar city: whatever is new to him arouses his interest.

In Donetsk, when I felt he should have been dropping from exhaustion, the President insisted on going down a coalmine. The scientist got into a miner's outfit and went down the shaft. He got plenty of coal dust in his lungs, of course, but he saw a new coal-cutting combine.

It is doubtful whether tiredness ever stops Mstislav Keldysh from doing anything. He was visiting the Ukraine's science centres when the automatic space apparata were approaching Venus. How could Dr. Keldysh miss the periods of communication with these vehicles? They interested him as a scientist. For two nights running he worked in the Distant Space Communication Centre — without, however, diminishing the intensity of his daytime work with us. In the evening, he flew off to the Centre and he flew back again next morning.

* * *

Obviously, without Keldysh's passionate interest in all forms and manifestations of life and in each particular area of scientific research no one can accumulate Keldysh's erudition. But it takes more than knowledge to be of help to fellow-scientists. One distinctive feature in his thinking makes Dr. Keldysh stand out among the many researchers and organisers of science: he is quicker and more precise than most in grasping the essence of the problem.

When he is thinking over some question, he seems to concentrate his whole being on the problem. Nothing seems to exist for him except that particular problem. At such moments people who don't know Dr. Keldysh may think him a taciturn, even gloomy person, who cares for nothing outside science. But this is far from the truth.

Dr. Keldysh has a passion for both music and painting and can liger for quite a time in a bookshop lovingly leafing through a monograph on art. But he can really cram into his 24 hours as much work as others can manage to do in several working days. However, it is not fanaticism or sacrifice on his part. It is simply his life. And he seems to enjoy it.

Like all organisers of science, of course, Dr. Keldysh has to make sacrifices, and some of his personal interests have to go by the board. Sometimes he has to put off his own research, cede to others problems he would be happy to tackle himself, neglect his own prestige and naturally his own fame as a scientist.

Without all this he would not be able to do the most vital thing of all: the President of the USSR Academy of Sciences has to coordinate the efforts of many research teams: the epoch of the brilliant lone researcher and even lone research teams is past. With his superhuman capacity for work and his immensely high scientific prestige, Dr. Keldysh is better equipped for the job than others. But even for him it is not so simple.

* * *

The past decade, during which Dr. Keldysh has presided over the Academy, has brought forth new sciences, has revised many traditional scientific concepts and produced a marked acceleration in the scientific and technological revolution.

The research teams which have to pool their efforts are complex and vastly different. But each has to be treated with the impartiality that is essential and peculiar to a President. The institutes, which are scattered all over the country, have different styles of work, hold different views and base themselves on different theories. These teams are led by scientists with distinctly individual patterns of thinking: talent is always individual, and obeys no rigid requirements.

Add to this the traditional division of science into college-and-university science, Academy science and ministerial science. Though life has long mixed together the theoretical and applied sciences they still exist

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"I was born in Riga. My father was a civil engineer, and I was the fifth of seven children," says Dr. Keldysh. "I spent my school years in Ivanovo, 155 miles from Moscow. Then I entered the Physics-and-Mathematics Department of Moscow University. Why did I choose mathematics? Apparently I began to understand that it was not a dry-as-dust science but the basis of all the natural sciences. After university I worked at the Central Aerohydrodynamics Institute in Moscow, doing practical research with Mikhail Lavrentyev, now head of the Academy of Sciences' Siberian branch. Parallel with that, I studied for my doctorate in mathematics at the Steklov Institute of Mathematics."

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separately in the minds of many researchers. From all this one can get some idea of how difficult it is for a President to solve the urgent problem of drawing together the efforts of many scientists into one common cause.

In carrying out this challenging work, Dr. Keldysh exercises his intrinsic firmness, his habit of assuming great responsibility and his desire to lead every job to conclusive practical results. That is another important trait of the President. Indeed, all problems he tackles, whatever the area of research, he brings to completion.

* * *

It seems that Dr. Keldysh's organisational successes are closely linked with his position as a researcher. Mstislav Keldysh is a brilliant figure in modern mathematics and the exact sciences in general. From the very first he seems to have been concerned as a scientist with tackling urgent issues raised by technology. As a young scientist, he began working in aviation, on crucial problems of aircraft design. These included his well-known solutions for flutter and shimmy — vibrations that destroyed planes in the air and even on the ground, when they were gathering speed for the take-off.

Once I saw in Dr. Korolev's study a photograph which was one of his favourites. On it were Keldysh, Korolev and Kurchatov. People then jokingly called it the "three K's" but they knew that that picture

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Toward the end of 1970 the Soviet Union had almost 930,000 scientific researchers, including over 240,000 holders of Master's and Doctor's degrees. Many of these researchers are employed by the USSR Academy of Sciences. Between 1917, when it had one institute, five laboratories, six museums, one library, one archive office and one printshop, and 1967 — the half-centenary of Soviet power — it grew to embrace more than 200 research institutions, and an extensive network of libraries, museums and publishing houses. Their activities are coordinated from this old building in one of Moscow's largest avenues, Leninsky Prospekt, which houses the Presidium of the USSR Academy of Sciences.

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of the three top scientists was highly symbolic: neither of the two senior K's, the "space K" or the "atomic K", could work without the third K, the mathematician Keldysh.

Mathematical methods of research were required for delving into involved phenomena in nuclear physics and astronautics. These methods made it possible to understand certain experiments, replace some experiments where these were impossible, and produce optimum technical designs for solving new scientific problems. This work has set the direction for the progress of a new branch of mathematics — computing mathematics — now an independent field of research.

For Dr. Keldysh aviation was only the beginning. He became one of the fathers of the extensive Soviet space exploration programme.

* * *

But back to Dr. Keldysh's tour of the Ukraine. The President kept repeating that all republican academies and all research institutions should take care to avoid duplication. Each science centre, he said, had to set itself some problem, perhaps narrow but its own, and, in solving it, try to achieve the highest scientific level, if possible, above the level of world science.

In the past decade science has extended its geographical borders considerably: new centres have sprung up in Soviet Far East, the Urals and the Ukraine. They would be pointless and merely eat up money, which the country needs for other purposes, if they did not have great, clearly formulated aims.

Great aims guide Mstislav Keldysh himself — as a scientist, mathematician and mechanical engineer and as an organiser of science, President of the USSR Academy of Sciences. The President sets his aim as serving his country by helping it develop a high level of civilisation and by contributing to the victory of the most equitable social system — communism.

Mstislav Keldysh, President of the USSR Academy of Sciences:

Stimulated by the October 1917 revolution, social progress will ultimately remove the danger of great achievements of science being used to create means of destruction and oppression; the tremendous forces being discovered and harnessed by science will be directed to the benefit of man.

from PRAVDA

Meetings Far from Home

Yuri SHPAKOV

Outside is the stuffy tropical night and foreign, unusually bright stars shining through the black lace of palm-trees. Once again his work has brought him rather a long way from his native Urals!

A tap at the door pushes his homesickness into the background.

"Somebody is waiting for you downstairs, sir," the porter says.

Nikolai Busygin hastily flings his jacket over his shoulders and leaves his room. He is accustomed to sudden calls at any time of the day and night, to long trips in any weather. There must be some technical snag again. Well, he is always ready to help . . .

This time he did not have to go anywhere. In the lounge Nikolai was surrounded by about twelve people, all happy and excited. They hugged him, kept interrupting one another in their efforts to talk to him in a mixture of Russian and Arabic words. The porter looked on in mute amazement. How was he to know that a lucky chance had brought together on Mali soil these people who had become friends several years earlier.

"It really was wonderful, that meeting," Busygin recalled with a smile. "It's true that it's a small world. These Arabs and I worked together on thc construction of the Aswan dam — I was teaching them how to operate our machinery. A few years later they had come to help the Mali people build roads. We were overjoyed and could not part for a few days. I acted as interpreter — I understand Arabic and the Arabs had learnt a little Russian from us.

Nikolai Alexandrovich Busygin has friends in various parts of the world. Apart from the United Arab Republic and Mali he has over the last ten years been to India, Canada, Finland, Belgium, Holland, England . . . Each time he went there to work.

Busygin lives in Chelyabinsk and works at a tractor plant. His trade is quite an ordinary one — he is a mechanic-driver. But he could with justification be called a test-driver. He works with the designers to bring new machines to perfection, develops all their potentialities. Naturally, he understands machinery through and through and handles it like a virtuoso.

Busygin's first spell abroad was a long one — two years in the United Arab Republic. Hundreds of Chelyabinsk tractors were used in the construction of the Aswan dam and the Egyptians had to be taught to operate them. Training went on right in the foundation pits, on the construction sites. The desert was scorching, the temperature was over fifty in the shade, the incandescent air was mixed with sand. But the machines came through with honour.

Nikolai Busygin trained dozens of specialists on African soil. He travelled thousands of miles about the desert, went out to the most remote districts helping Arab friends to arrange repair service, taught fellaheen how to operate tractors and suspended implements. They responded with warm gratitude to their friendly tutor, who, in addition to sharing his knowledge and skill, generously taught them — without even realising it — new, just and comradely relations.

At first Busygin used to wonder why the most usual and natural actions of his were regarded by many of the Arabs as something unusual. He would go on working, however tired he might be, would rush late at night to the scene of an accident, could spend

Central control panel of the Aswan scheme.

hours explaining the structure of a machine to a barefoot youngster from a poor family. But could he have done otherwise?

Once in Cairo Busygin received an unusual request. A fishing boat was anchored in the roadstead and all the attempts of the crew to repair the engine were without success. Could the Russian mechanic help? Nikolai Busygin had never had anything to do with boat engines before, but he could not refuse: the fishermen were looking at him so hopefully! He made a rapid examination, soon discovered what was wrong, and in no time had it right again. Busygin firmly refused any payment. He shook hands with the fishermen, and was away without waiting for their thanks.

During his trips the Soviet worker met not only friends who expressed kindly feelings for his country. He also came across some obvious enemies. Sometimes he had to repair Soviet machines which had been deliberately

damaged by somebody in transit or he might find himself engaged in public argument with some emigrant from the USSR, or demonstrating the potentialities of Soviet machines to distrustful businessmen . . .

"I remember one incident," Busygin says. "In Belgium I was called in by a rich farmer, who had bought one of our combine harvesters. He claimed that the engine was not of the stipulated horse-power. But it turned out to be the result of his own careless handling."

On their trips abroad Busygin and his comrades have often had to solve rather more knotty problems than that. In India, for instance, where a big batch of powerful Chelyabinsk tractors "DET-250" had been supplied, some vital engine unit kept going out of commission. They discovered that the source of the trouble was not the engine design, but the fact that the wrong lubricating oil was being used. The light oil would flow out, the metal would start to crumple because of friction. When the oil was changed the trouble stopped.

"Of course, I'm not a diplomat, not a foreign trade official," Nikolai Busygin smiles. "But we are tackling the same kind of tasks, in a way. Each of us represents our country abroad."

L. BREZHNEV,
FROM THE REPORT OF THE CPSU CENTRAL COMMITTEE TO THE 24TH CONGRESS OF THE COMMUNIST PARTY OF THE SOVIET UNION

The Soviet Union is a peace-loving state, and this is determined by the very nature of our socialist system. The goals of Soviet foreign policy, as formulated by the 23rd Congress of the CPSU, consist in ensuring, together with other socialist countries, favourable international conditions for the construction of socialism and communism; in consolidating the unity and cohesion of the socialist countries, their friendship and brotherhood; supporting the national liberation movement and engaging in all-round co-operation with the young developing states; consistently standing up for the principle of peaceful coexistence between states with different social systems, giving a resolute rebuff to the aggressive forces of imperialism, and safeguarding mankind from another world war.

▲ Aswan is a symbol of cooperation between friendly countries. This unique structure in the United Arab Republic bas been built by Arab and Soviet specialists working togetber. The hydroelectric station bad its ceremonlal opening on January 15 this year. Its 12 turbogenerators have a total rated capacity of 2,100,000 kilowatts.

▼ A welcome from Alexandria shipyard workers for tbe Soviet delegation arriving for the official opening of the Aswan hydroelectric station.

INDESTRUCTIBLE FRIENDSHIP

by Victor KUDRYAVTSEV

from the magazine NEW TIMES

The Treaty of Friendship and Cooperation between the Soviet Union and the United Arab Republic was signed in Cairo at the end of May.

The conclusion of the treaty has been widely welcomed in the UAR and other Arab countries as an event of exceptional importance with a bearing on the prospects of a Middle East settlement and continued strengthening of the sovereignty and independence of the Arab states. It underscores the resolve of the Soviet Union and the United Arab Republic to develop and cement the friendship and all-round cooperation that have come to mark their relations. In the event of the development of situations creating, in the opinion of both sides, a threat to peace, or violation of peace, they will contact each other without delay in order to agree their positions with a view to removing such a threat or restoring peace.

"This is a big day in the history of Soviet-Egyptian relations," an Egyptian diplomat acquaintance of mine told me. "The fact that the process of the strengthening and expansion of these relations has found expression in this treaty and has thus been recorded in international law signifies their advance to a new and qualitatively higher level."

The treaty goes beyond problems relating to Soviet-Egyptian relations in the narrow sense of the word. It records the identity of our countries' positions on a wide range of international issues. This indeed is one of the reasons why it is in the focus of world attention.

Egyptian commentators stress that the treaty is the logical result of the evolution of Soviet-UAR relations to date and follows from the path of struggle and ordeal present-day Egypt and her people have traversed.

"The very logic of our fight for freedom and social progress has led to friendship with the Soviet Union becoming a crucial factor of our progress," the Cairo journalist

Ibrahim Naour told me when I asked him what he thought the development of Soviet-Egyptian relations meant for the UAR from the standpoint of its social progress.

"That is the quintessence of our experience over the past two decades," added a colleague of his.

Forging ahead in the face of formidable difficulties aggravated by the hard but just struggle against the aggressor, the UAR has invariably enjoyed the all-round support of the Soviet Union. Soviet political, economic and military assistance has enabled its people to foil the imperialist schemes, to defend and strengthen their progressive regime, to build up their country's defence capacity, its potential to repulse the Israeli aggressors' military gambles.

Egypt made use of the extensive economic aid rendered by the Soviet Union to uproot the survivals of colonialism in the economy and carry out a structural reform of society. With the completion of the great Aswan power project built with Soviet help, the country acquired a solid power base. The Helwan Iron and Steel Works, likewise built with Soviet assistance, is the foundation of Egypt's metallurgical and engineering industries. Speaking on May 1 in Helwan, President Sadat stressed that the mill would play an important part in the extensive development of the Egyptian economy in coming decades.

* * *

AGGRESSION WILL NOT PAY DIVIDENDS

from IZVESTIA

At the talks in Cairo in June attention was centred upon the dangerous situation created in the Middle East as a result of Israeli aggression against the United Arab Republic and other Arab states — launched four years ago, one of its main aims being to destroy the revolutionary gains of the Egyptian people. These plans of the extremists in Tel Aviv and their American protectors, however, have failed.

Unable to achieve their goal by military means, they have changed their tactics: in the hope of entrenching herself in the occupied Arab territories, Israel — along with her American patrons — is banking on doing everything possible to drag out the Middle East crisis.

With the connivance of the USA, the Israeli aggressors have sabotaged the Security Council Resolution of November 22, 1967, having ignored the constructive proposals of the UAR for a political settlement of the Middle East conflict taking into account the legal rights of all states and peoples of the area, including the Palestinian Arabs.

But anyone who is hoping to reap dividends from Israeli aggression is inevitably in for a disappointment.

A stable peace in the Middle East is possible only on the basis of Israel's withdrawal from all occupied Arab territories and the scrupulous implementation of the Security Council resolution.

MAIN CONSTRUCTION SITES OF THE NEW FIVE-YEAR PLAN

from the magazine RABOTNITSA

Here you see (p. 20-21) a map of the Soviet Union showing the main construction sites of the latest five-year plan (1971-75).

During this period the branches of the economy that are to be developed particularly quickly are those playing a leading role in scientific and technical progress—power engineering, machine-building, the chemical industry, and also light industry.

Especial attention is to be given to the development of the eastern regions of the country—Siberia, the Far East, Kazakhstan, and Central Asia. Intensive work will be done to exploit the tremendous oil and gas reserves found in the East. New big oil refineries and gas and chemical enterprises will be built, together with non-ferrous metals plants and big power stations.

A specific feature of the ninth five-year plan is the construction of big industrial complexes where it is convenient to site several different enterprises in one place.

In the European part of the USSR and the Urals economic region, where altogether more than three-quarters of the country's entire population live, industry is particularly well developed. Even so, quite a number of new factories are to be built in these areas, and the construction of power stations is to be speeded up. There will not only be solid-fuel and hydroelectric power stations but also a number of big atomic stations.

In the heart of the European part

1. Vilcisko-Minsk Waterway System
2. Chernobyi Atomic Power Station
3. Moldavian Thermal Power Station
4. Tripoiskaya Thermal Power Station
5. Ladyzhinskaya Thermai Power Station
6. Kremenchug
7. Krivoi Rog Thermal Power Station-2
8. Dnieper Hydropower Station
9. Zaporozhye Thermal Power Station
10. Vartsikhi Hydropower Station
11. Hydro installations
12. Shamkhor Hydropower Station
13. Novocheboksarsk
14. Kurpsai Hydropower Station
15. Toktogul Hydropower Station
16. Nurek Hydropower Station
17. Yuzhno-Tajik complex

of the USSR a new industrial complex is being developed around the iron ore of the Kursk Magnetic Anomaly. In the west and south of the European part of the USSR new oil refineries are being built, new power stations, machine-building plants and enterprises of the light and food industries.

The map shows only the most important of the construction sites of the five-year plan. It is impossible, of course, to mark on it all the 5,500 towns and townships and all the hundreds of thousands of smaller centres of population where new industrial undertakings, dwellings (16 million flats), schools, clubs, hospitals and institutes are to be built.

The main task of the five-year plan is to substantially raise the Soviet people's standard of living. The rapid development of the Soviet economy will make this possible.

SPUTNIK presents an interview with the Soviet Union's Chief Air Designer, Dr. Andrei Nikolayevich Tupolev, Member of the USSR Academy of Sciences.

TWICE AS FAST AS SOUND

from PRAVDA

"To put supersonic passenger planes into service"

(from the Directives of the CPSU 24th Congress on the Ninth Five-Year Plan for 1971-75).

CORRESPONDENT: According to some reports, the TU-144 plane will become operational before the Concord. According to others, the Concord is already at the stage of test flights.

TUPOLEV: Work on the supersonic passenger plane Concord was started eighteen months before we began work on our TU-144. When the prototype of our plane was being constructed we thought we would be able to put our brainchild into passenger service fairly soon. As it turned out, things were not as simple as all that. It is a long way from test flights to regular flights. Before the plane, which differs sharply from its predecessors, is put into service it has to go through four fundamental stages. The first is research in various spheres, the second the building of several prototypes and industrial tests. The third is the manufacture of a group of planes precisely like those which are to be put into quantity production. Finally comes a test conducted in conjunction with those who are to run the new plane. By world standards, a new aircraft has to put in several million miles of flying before it can take aboard passengers. Our machine has already passed many of the stages of development and testing. Things are going exactly as planned.

CORRESPONDENT: The very first reports on the supersonic passenger plane TU-144 reveal that it will fly twice as fast as sound. Does this amount to a technological revolution in civil aviation?

TUPOLEV: Today the world has so many air scientists and designers that hardly any major relevant problem remains overlooked. Any important new problem, say, that of making the flight substantially faster or more economical, calls for a great deal of research and for the settlement of thousands of individual small problems.

People who are remote from this gruelling daily effort may think that our results constitute a leap forward. But the designers of the supersonic passenger aircraft realise that it is simply a stage in the overall progress in air engineering. Of course, the designing of the TU-144 is a notable achievement: now the speed of flight jumps from an average of 530 to 1,430 miles an hour.

CORRESPONDENT: Why are the designers striving for a sharp rise in flight speeds of passenger planes?

Why not increase speeds gradually, say, by constructing aircraft doing first 750 miles an hour, then 930 and so forth?

TUPOLEV: As is known, sound travels through the air at a speed of about 685 miles an hour. Speeds close to this sharply increase drag, giving rise to what is known as the sound barrier. So flights must be made either in the pre-barrier regions or far across this barrier, in order to win any substantial gain in speed. The ultra-supersonic speed is dictated by considerations of economy. Judge for yourself: the passenger plane flying at a speed of, say, 1,550 miles an hour alone can replace three ordinary aircraft. Besides, even a layman understands that it is more beneficial to exploit one plane in an airport than three. It is really great economy.

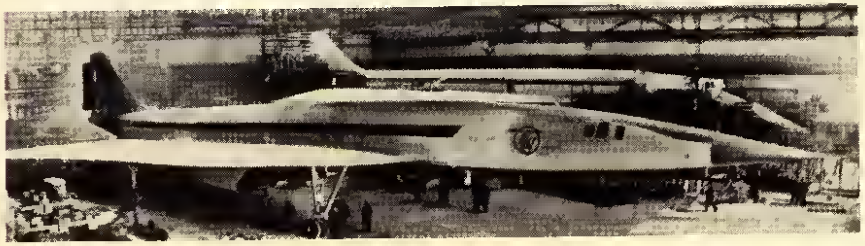
CORRESPONDENT: Besides the sound barrier, the transition to such planes will evidently mean that passengers will have to overcome a psychological barrier — what I would call speed fright.

TUPOLEV: When the motor-car was being designed some people thought that even a speed of nine or ten miles an hour would make man suffocate in the oncoming air flow. Now we smile at this thought. High speeds cause no discomfort: man just does not feel them. The organism reacts only to acceleration and braking, notably when these are repeated. But aboard TU-144 acceleration occurs just once, at take-off, and braking occurs once, too, on landing.

CORRESPONDENT: What demands do the attendant sophisticated engineering problems make on the aircraft design team?

TUPOLEV: The country designing a modern supersonic passenger plane must have a lot more than such a team. It must have an advanced research industry to grapple with new problems posed by aerodynamics, aeroelasticity and stability at hotter temperatures. Other challenging problems arise from having to design high-capacity engines and electronic equipment for automatic piloting, navigation and landing.

This immense comprehensive research which has been carried out by institutes of the aircraft industry provided the basis for the development and designing of our plane. And it is an excellently run industry and the high skill of the Soviet aircraft-builders that have enabled us to launch quantity production of the TU-144.



The super-liner TU-144 has been put into quantity production.

Giant with a Screw

The world's largest helicopter, the V-12 has been built in the Soviet Union. It lifts a cargo of over forty tons to a height of more than one and a quarter miles — twice the record recently established by another Soviet helicopter, the MI-6.

The new machine is really colossal: it is 121 feet long and 40 feet high. Its cargo compartment holds two LAZ tourist coaches, produced by the Lvov Motor Works, or three giant MAZ lorries, produced by the Minsk Motor Works. The helicopter is capable of carrying in its belly enough homes for a whole settlement of Siberian timber workers, of delivering all that is required for a party that has to spend a long winter in a remote place, or of transporting a party of geologists complete with their equipment, tractors and horses to a new prospecting site.

The V-12 can develop a speed of over 124 miles an hour. Its four 6,500 h.p. engines rotate two powerful screws, each of them 115 feet in diameter.

The machine is light and easy to control. In its pilot's cabin there is almost none of the vibration and noise usual in large machines. Its power supply would be enough for a small town, and its crew, in addition to the usual two pilots, air navigator, flight radio operator and flight engineer, therefore has a sixth man, a flight electrician.

Many units of the new machine have already been patented in some of the world's leading countries in aircraft production.

Soviet planes and helicopters are being bought by thirty-nine states.

from IZVESTIA

Flying Goods Truck

A powerful new transport plane, the Il-76, has been designed by a board headed by Dr. Sergei Ilyushin, a Member of the USSR Academy of Sciences.

What are the advantages of the new machine? It can take off from either a concrete runway or an ordinary dirt airstrip. The Il-76 needs only a short take-off and landing run although it weighs more than 100 tons.

Fitted with special navigational equipment and a computer easing automatic flights on regular lines and making possible an automatic approach for landing, the machine can fly in any weather, winter or summer.

With a hermetically sealed cabin, it can fly as high as eight miles, in a rarefied atmosphere where it is easier for jet planes to fly. That is why this new member of the Ilyushin family has an unusual configuration: it is a high-wing monoplane. Its wings overhang its fuselage and have four powerful turbofan engines fixed to them on pylons, two on either side. They bring the speed to up to 560 miles an hour.

The Il-76 will carry all kinds of loads, including large machines, industrial equipment, fruit, meat, milk, fish and other perishables. This "flying goods truck", which can land almost anywhere, has long been awaited by builders, oilmen and geological prospectors in Siberia, the Far North and the Soviet Far East.

from the newspaper TRUD

The piano assembly line at the Moscow musical instruments factory.

Academician Pavel Lukyanenko, selectionist, who has developed three of the world's best varieties of wheat: "Bezostaya-1", "Aurora" and "Caucasus".

Lev Yasbin's farewell game is over. The famous goalie is far from happy to say goodbye to big-time football, and fans are sorry to part with their idol.

Crime without Punishment

by Alexander **Serbin**, Ivan **Shchedrov**

from PRAVDA

This article is about children who are not fated to enjoy a carefree childhood, or even any childhood.

In hospitals in the Democratic Republic of Vietnam there are now 179 patients from Soutb Vietnam who had great difficulty crossing the border. They themselves have experienced the effects of the chemical weapons the United States is using south of the 17th parallel. Among them are 70 children. We saw two of them.

. . . Chang Tki K. (for obvious reasons we give no full names though we have them in our notebooks) was expecting her first child. Early in the morning of June 15, 1969 — she will never forget that day — Chang went out to work in the field. At about 9 o'clock a plane appeared in the sky, a trail of thick fog stretching out behind it. It came lower and lower, enveloping trees and earth. There was no hiding from the fog. The young woman felt nausea, followed by a burning sensation in her throat, and was overcome by a sudden terrible tiredness. She does not remember how she reached home. In three or four days Chang felt better. In December, she gave birth to a daughter — one month premature. . .

We saw her baby. Her disproportionate little body was racked by incessant convulsions. She could not hold her head upright, or keep her eyes focussed on one spot — all the time they darted wildly about. All these things were consequences of her mother having been poisoned by defoliants. That dose of ominous fog proved fatal to the little girl.

Dr. Pham Ngok Lo is observing victims of US chemical experiments. "The mother was poisoned by chemicals in her second month of pregnancy. It is particularly dangerous for the child," he began. "The result was genetic changes in the mother's own organism and in that of her baby. The girl reveals obvious microcephaly. Her cranium is deformed and her nerve centres are affected — her head does not remain in the normal position and her spine cannot support her body. The girl cannot lie straight, she cannot sit or stand. She has an abnormal thorax, and her palate has been destroyed. Her organism is developing very slowly."

We spoke to another mother who had been poisoned. Her story was much about the same. In 1968 she had been working in a rice-field, she said, when a plane in the sky released a pall of poisonous fog. She was in two American chemical attacks. And the scene was another district in the province of Kwangchi. The rest was just as inhumanly simple.

Let the doctor speak of her child: "Khoang Tki L. had given birth quite normally to two babies but her third pregnancy was a painful one. Her younger daughter was born here, in the Democratic Republic of Vietnam. Her head was immediately found to be abnormal in shape: she had a bulging forehead, a flat, sloping back of the neck, misshapen fingers and toes and six toes on her left foot. Fifteen days after birth the child developed a constant flow of tears. At first we thought it was an ordinary children's ailment but an investigation revealed that her lacrymal canals were unable to check the flow of tears. The child is growing unnaturally slowly. Twenty-two months old, she still cannot stand, let alone walk. She cannot speak and understands only the voice of her mother. Genetic anomalies have been discovered in the girl."

The lives of these two babies are ruined.

Who will answer for their sufferings to their mothers?

"As we have established," says Dr. Lo, "defoliants have a noxious effect on human beings and their future children."

The Americans have been using gases and other chemicals in Vietnam for more than ten years. Between 1961 and 1969 a total of 1,293,000 people fell victim to them.

Of This and That...

NEWS FROM THE SOVIET UNION

Date of Birth 1805...

Shirali Mislimov, the Soviet Union's oldest inhabitant, is now 166 years old. On his birthday many people sent greetings to this patriarch of the Caucasus and wished him many more years of life.

Dr. Khanoglan Shikhaliev, who keeps an eye on the venerable old man's health, told correspondents that Shirali Mislimov was feeling fine. He walks a lot, works in his own orchard, eats in moderation, and does not smoke or take strong drink. A medical examination just before his birthday showed blood pressure and pulse to be absolutely normal.

Mislimov has 209 living relatives. His eldest grandsons are already over 60. His brother — Shirin-baba — is 154 years old. He leads the same kind of life as his elder brother, but also fits in the duties of deputy to the village council.

Attacking the Disease of the Age

Money raised by the last **Subbotnik**, on April 17, is to go largely to help build an all-Union cardiological centre in Moscow.

Subbotniks have been held in the USSR since 1919, when people worked on Saturday — Lenin took part, too — and the money they earned was handed over to the young Soviet Republic.

Commenting on the decision on how to spend the money raised by the last **Subbotnik**, B. V. Petrovsky, USSR Minister of Health, said: "Cardio-vascular diseases are problem No. 1 for present-day medicine. The task of overcoming the 'disease of the age' is a problem of state importance in the USSR."

The Myasnikov Institute of Cardiology will be expanded to form the new centre, the tasks of which will be to coordinate the work of Soviet heart specialists, to decide upon prophylactic measures, treatment for atherosclerotic affection of the blood vessels, hypertension, etc.

Eminent scientists will take part in the centre's work.

Money raised by the **Subbotnik** will also be used to provide specialised cardiological and therapeutic blocks at republican, territorial, regional and large city hospitals and also special departments to treat people who have suffered an infarction.

Part of the **Subbotnik** funds will also be spent on the construction of schools, including vocational training schools, and also an all-Union cancer-research centre.

A Sizeable Bit of Gold

The biggest gold nugget found this year comes from the Arctic gold-fields in Chukotka. It weighs 1,165 grammes.

Antarctic Observatory

The Soviet Antarctic station Molodezhnaya, set up eight years ago, has been transformed into an observatory. It receives meteorological and aerological information, processes it and transmits it to the hydrometeorological centre in Moscow, and also to whalers, fishermen and fliers.

Artificial Diamonds on the Conveyor Belt

The Moscow Hard Alloys Works has begun to produce artificial diamonds of up to one carat.

Elk Gives Birth in Moscow

Not long ago an elk wandered into Moscow.

and in a few hours gave birth to two cubs. The event took place about 1,000 feet from a busy main road — Kutuzovsky Prospekt.

Flagship of the Tanker Fleet

A large tanker, the **Mir**, which will be the biggest vessel ever built in the USSR, recently came off the drawing board.

It will carry 150,000 tons of cargo and have a displacement of 160,000 tons. It will be 940 feet long and 148 feet wide. Loaded, it will be capable of 17 knots.

At present the Soviet Union is using tankers of the **Sofia** class, which can carry 50,000 tons. The new tanker will therefore be the equivalent of three such ships and will prove far more economical.

The flagship of the Soviet tanker fleet will come off the stocks in 1973, and will be the first of a series of such vessels.

Moscow Circus Makes a Move

A round building of glass and aluminium, with a silvery ribbed roof reminiscent of the traditional Big Top has been erected in the South-west area of the Soviet capital, not far from the University. This is the new circus — its official title being "the Palace of Circus Art".

The new circus has seating for more than 3,300 people. Instead of the usual one, it has four alternating arenas, which make it possible during one show to present an equestrian group, a complicated acrobatic act, a performance on ice, and a water ballet. The original design, with its cybernetic controls, makes it possible to replace one arena by another in an instant during the show.

Today the USSR has 50 permanent circus buildings, more than all the circuses abroad taken together. In addition there are 14 travelling circuses which perform under canvas, and 13 animal circuses.

More than 50 million people go to the circus yearly in the USSR.

Last year Soviet circus artists played in 35 countries in Europe, Asia and America. In Japan they gave a performance in a hospital for victims of the atom bomb dropped on Hiroshima.

Jet Engine for the Railways

This laboratory wagon with a jet engine was built and tested at the wagon-building works in the town of Kalinin. It can do 155 miles an hour, and six tons of fuel last it for 625 miles. On its way the laboratory carries out research in connection with the designing of high-speed express trains.

The length of the wagon, with fairing, is 90 feet; its height is 13 feet and its weight 60 tons.

BOOKS IN THIRTY LANGUAGES

Progress Publishers holds a prominent place among all Soviet publishing houses: it has for many years been putting out books in foreign languages. This year Progress Publishers plan to issue about 500 book titles in almost 30 languages.

The collected works of Marx and Engels are to be published in English for the first time, while their selected works will appear in Urdu, Hausa, Spanish, Arabic and Finnisb. A number of works will be translated into Indian languages.

About 50 books by Lenin, and also stories and reminiscences about him are being prepared for publication in 20 languages, among them Telugu, Swahili, Punjabi, Sinhalese, Vietnamese and Gujarati.

Books on philosophy, law, economics, history and international relations are also to be published. A monograph, *Socialism and Communism*, is being translated into English. Another monograph, *The Soviet State and Law*, examines the state structure of the Soviet republics and the Union as a whole; it will be published in French, Spanish and Arabic.

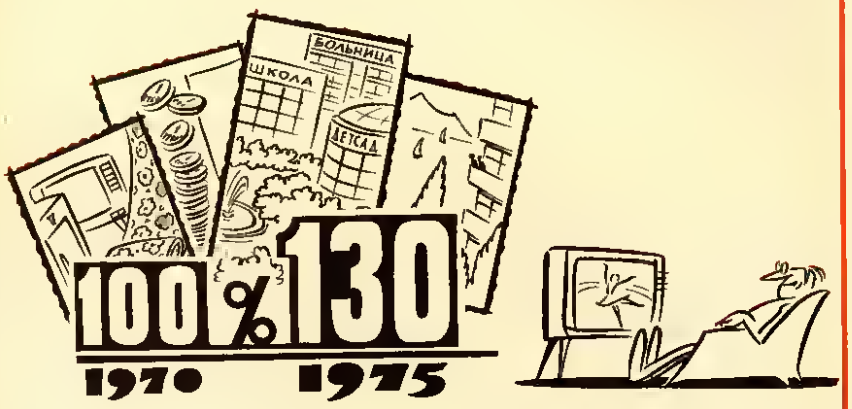
A book on the basic tenets of Marxist political economy by Professor Lev Leontiev, Corresponding Member of the USSR Academy of Sciences, is to appear in English and French.

Several publications will be devoted to the Soviet Union and the life of the Soviet people, among them books on Soviet history, public health system and education. They will come out in English, French and Spanisb.

Fiction will be represented by works of Russian classical writers and modern Soviet authors. Books by Alexander Pushkin, Mikhail Lermontov, Fyodor Dostoevsky, Leo Tolstoy and Anton Chekhov will be published in English, French, Hindi, Farsi, Amharic and other languages. Maxim Gorky's works will be published for the first time in Marathi and Sinhalese. His works will also be translated into French, Swahili and Telugu. Nikolai Ostrovsky's well-known novel, *How the Steel Was Tempered*, is to be published in Bengali. Works by Mikhail Sholokhov will appear in English, Spanish and Malayalam, by Alexei Tolstoy in German, and by Konstantin Paustovsky in Italian and Farsi.

This year Progress Publishers will put out several dozen titles for children and adolescents in almost 30 languages. Among them will be books by such leading Soviet children's writers as Samuel Marshak, Kornei Chukovsky, Sergei Mikhalkov and Nikolai Nosov.

The New Soviet Five-Year Plan



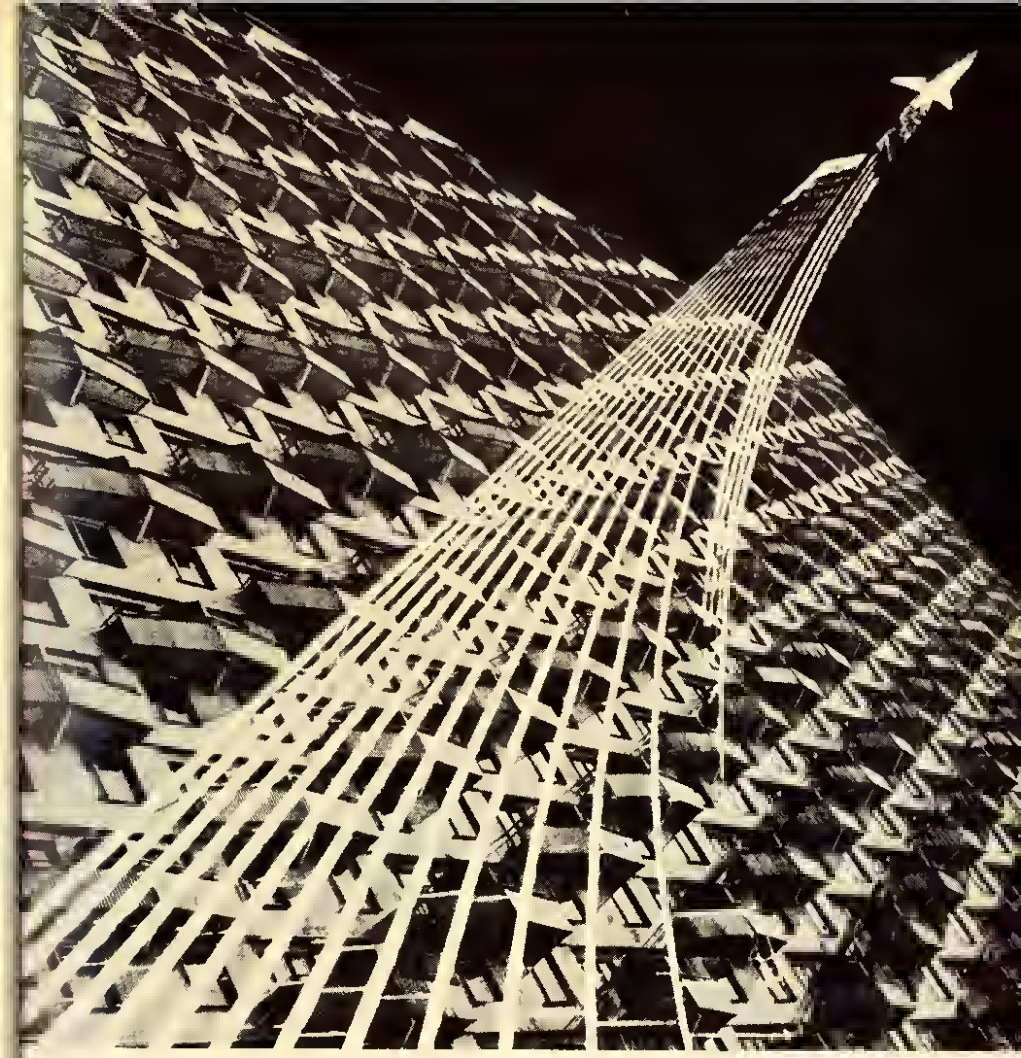
The Main Aim

The line of substantially increasing the well-being of the people will govern the activity of the Communist Party and the Soviet government not only in the next five years but over a long period.

It is considered particularly significant that the production of foodstuffs and manufactured goods should be ahead of increasing cash incomes of the population. In the Ninth Five-Year Plan provision is made for consumer goods production to grow more rapidly than the cash incomes of Soviet citizens.

Last year average wages in the USSR were 122 roubles a month (plus 262 roubles a year per head from social consumption funds). The Ninth Five-Year Plan envisages the increasing of average wages of workers and office employees by 20-22 per cent and payments to collective farmers by 30-35 per cent (at the end of the plan period social consumption funds will provide 367 roubles per head of population a year).

Diagram: by 1975 real incomes in the USSR will be 30 per cent higher than today — taking into account the average wage growth and the increase in social consumption funds.



SOVIET ARCHITECTURE:

PROBLEM Number One

Vladimir BELOUSOV, Secretary of the Board of the Union of Soviet Architects, discusses the work and plans of Soviet architects.

from LITERATURNAYA GAZETA

CORRESPONDENT: Modern architecture has developed so many facets and aspects that no individual expert, let alone layman, can grasp all of them. What is the central problem of Soviet architecture?

BELOUSOV: To my mind, the problem of town planning.

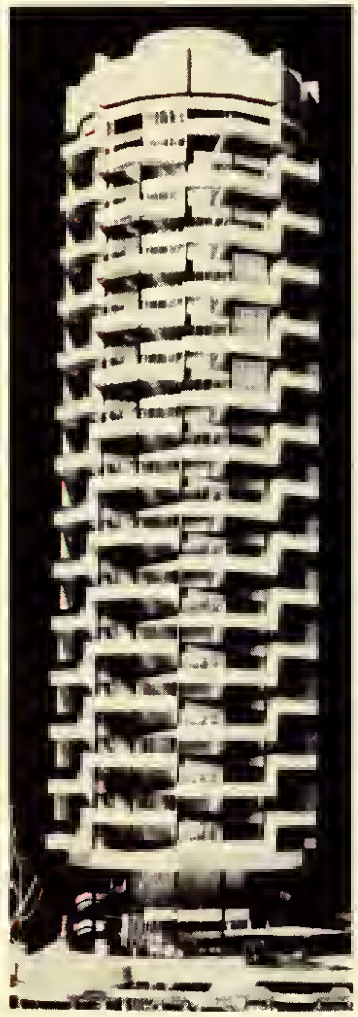
In the past five years we have built over 100 towns and several hundred housing estates and neighbourhood units. By 1980 we are to build roughly another 200 towns and several thousand neighbourhood units.

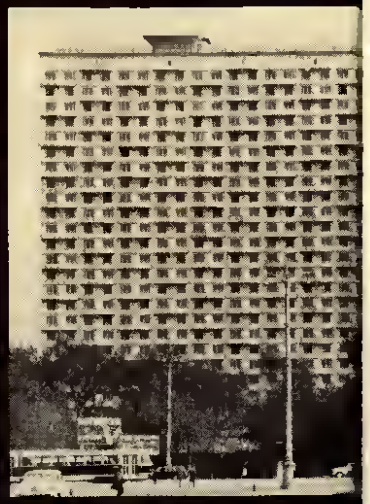
That's the size of the question, the quantitative aspect. But quantitative change eventually builds up into qualitative change. Everything we now build or design is, in one form or another, part of, or depends directly or indirectly on town planning. In the past the architect could build a detached nobleman's castle set in an English-style park or a landowner's mansion among a few villages without having to tackle any town planning problems. Towns arose spontaneously. Now the situation is different. The modern city is a single organism which is built strictly to plan, and all the rest of it — suburban construction, industrial projects,

Top: The Yubileiny Palace of Sport, recently built in Leningrad.

Bottom: The tall blocks in Kalinin Prospekt extend almost to the bank of the Moskva River. On the left is the CMEA building.

Flats of the future?





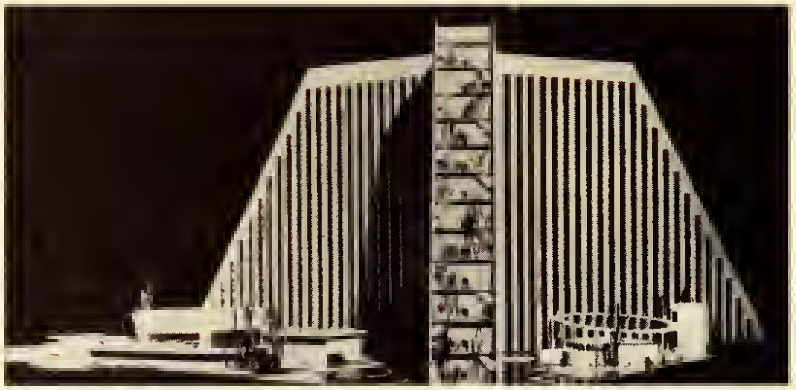
Top left: The Sovremennik Palace of Culture in Ufa, capital of the Bashkirian Autonomous Republic.

Top centre: High rise flats in Prospekt Mira, Moscow.

Top right: The new Actors' Club in Ufa.

Right: Lenin Square in Yerevan, capital of Soviet Armenia.

Another design for a block of flats dreamt up by architects.



From the top of the CMEA building there's a fine view of the western part of Moscow.

recreation areas and so forth — is built with an eye to this plan. Roads and transport have become integral parts of the city. Today all places where man works, lives or plays are under the "jurisdiction" of architects, who decide even small details such as the arrangement of factory windows or the interior layout of a flat.

It is precisely town planning that brings architects together: only the common effort of many narrowly-specialised architects creates the complex entity known as a "town".

The architect now works in the countryside, too. With his assistance, the present-day village is slowly but surely changing its aspect. In the Moscow Region, village reconstruction has become the responsibility of the Union of Soviet Architects' Moscow organisation, the largest in the country. Over fifty design institutes are working on orders from it.

CORRESPONDENT: It must be very difficult to design a modern urban organism. What technical innovations do you make use of?

BELOUSOV: Naturally, we don't work as architects did in the past. Two centuries, or even one century ago the architect

The circus in Krasnodar.

planned buildings solely on the basis of his own experience and intuition and was hemmed in by very few restrictions. In St. Petersburg (now Leningrad), for instance, no house was allowed to be higher than the Winter Palace. Today intuition alone will not take the architect far. We no longer think in terms of separate buildings. We plan whole towns.

A great deal of thought has to be given to everything from the social and the economic standpoints, and precise technical calculations are essential. Computers have become a must. Now we are having to automate the designing of towns and individual projects: the human brain simply cannot cope with the host of factors relevant to the choice of the optimum version.

CORRESPONDENT: How do you consider national traditions in architecture? The question is too subtle for the computer, isn't it?

BELOUSOV: Yes, that one's a bit too much for the machine. It requires human taste, creative ability, imagination and talent. National traditions in architecture are discussed in a multitude of books. In theory, it all seems clear. Not so in practice. National architecture is not just a

Block of flats in Alma Ata, capital of the Kazakh Republic. The balconies shelter the flats from the scorching sun.

Perhaps our descendants will live in something like this?

There is often a juxtaposition of old and new in Vilnius, capital of Lithuania.

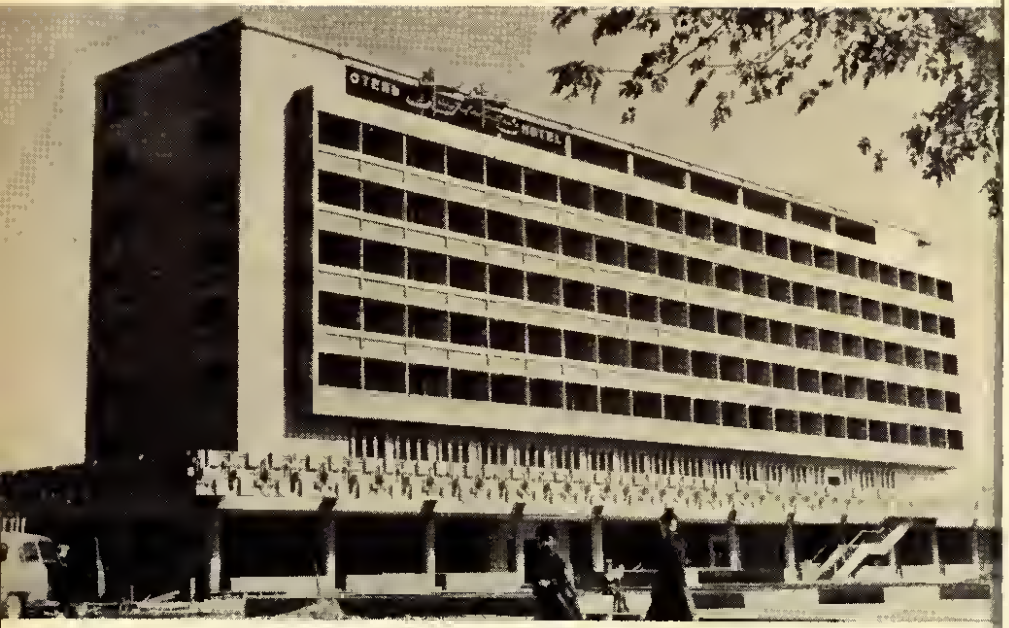
A curving facade from the elegant ensemble of Komsomolskaya Square, Leningrad.

matter of ornamentation or of repeating archaic forms. It is the use of the rich experience of folk architecture. True enough, that presupposes the extensive application of a wealth of modern finishing materials, and the architect's imagination sometimes outruns the potentialities of our building material's industry.

Here it is vital to turn out Russian and non-Russian architects with a good knowledge of the achievements of world architecture and sensitive to their own national architectural traditions.

Now we have such personnel. In recent years we have been doing thorough research and we frequently find a harmonious combination of national and international elements. The architect who takes account of the climate, landscape and customs of his people always works with an eye to the given environment. In other words, he draws upon the historic experience of national construction. In this sense the new areas built in Tashkent, which was ravaged by an earthquake in 1966, are most indicative. Alongside multistorey blocks of flats there are groups of one-storey buildings. The new homes, though built of modern materials, are in keeping with many of the local traditions. Each one-storey house is intended for one large family, of which Uzbekistan has many.

Interesting projects are now underway in Ashkhabad, capital of another Soviet Central Asian republic, Turkmenia. Examples are the offices of the Karakum Construction Board, the Ashkhabad Hotel, and the public library, all designed under the direction of Abdullah Akhmedov. The designers have made bold use of ornamentation typical of traditional Turkmenian carpets. The Alma Ata Hotel, in the capital of Kazakhstan, and the Iveria, in Tbilisi, capital of Georgia, both modern but different in pattern,



Hotel in Ashkhabad, capital of the Turkmenian Republic.

form organic parts of their cities' ensembles. The city of Navoi, in Uzbekistan, and the city of Shevchenko, in Kazakhstan, have been designed by Leningraders with an eye to local conditions and traditions. In view of the rigorous conditions of life in the hot, arid desert, something had to be done to make life tolerable to man. The new blocks of flats in Navoi and Shevchenko are air-conditioned, and the homes are built to keep out the scorching sun. Courtyards and streets are rich in trees and plants and abundantly watered. There are good leisure facilities, including sports installations and children's playgrounds.

The architecture of Žirmunai, a new district in Vilnius, capital of Lithuania, has won the USSR State Prize. The city is building another district, Lazdynai. Its designers promise that it will be still more attractive.

CORRESPONDENT: And how about the Russian Federation?

BELOUSOV: On a recent visit to Tula I attended the opening of a new regional theatre. Architecturally, it is the best theatre in the Soviet Union. Four architects have created most interesting and original theatre building. The roof is of a new design, the stage equipment is unique and the interior decoration is effective. The auditorium and seating arrangements can be transformed — something that Eisenstein and Meyerhold dreamed of. It is noteworthy that the Tula people have manufactured everything in their own factories. This theatre, therefore, is their own, down to the last brick.

This is what Novo-Murmansky Prospekt, in Leningrad, is to look like when it is finished.

Intensive construction is going on all over the republic.

In Vladivostok, new housing schemes on complicated hilly terrain have given the city a memorable silhouette.

CORRESPONDENT: It is certainly a welcome development that we are now building many graceful buildings, and rapidly, too. But another question arises: 100 towns built in five years and another 200 to go up — do all of them have a secure future? New towns are usually built for some utilitarian purpose: around a factory, near a newly-discovered ore or oil deposit, or beside a communication line. But suppose the deposit is exhausted. What will become of the town?

BELOUSOV: It is a difficult question, to which, so far, no one can provide a definitive answer. Indeed, many new towns come into being on bare ground. There is a general development plan for them all. Depending on circumstances, the population has a set limit. The oil cities of Siberia, for

instance, will have many thousands of residents; Togliatti, on the Volga, will have 350,000. A city like that cannot be built in one go, so it is coming into being in stages. Meanwhile, life is modifying the plans. The general plan sets out the prospects for the development of town planning over the next 25 or 30 years — in fact until the year 2000. After that boundary it is all rather vague. For most cities we have outline plans for the next 50 years. Occasionally we can visualise, in general terms, the fate of a city a century ahead. Colossal amounts of money are spent on capital construction, so we have to have at least a general idea of the future. According to terrain, scenery and climate we can predict that the given town will keep expanding a hundred years from now, say, southwards and not northwards. That guides us in orienting its communications.

Of course, an ore or oil deposit may become exhausted so the plant will have to be dismantled but the city, once it emerges, becomes an entity in itself, with its own interests which must be taken into account by the architects.

BEE-WARE!

A man stung by a bee immediately attracts other bees, which seek to sting him exactly where he has just been stung. Why?

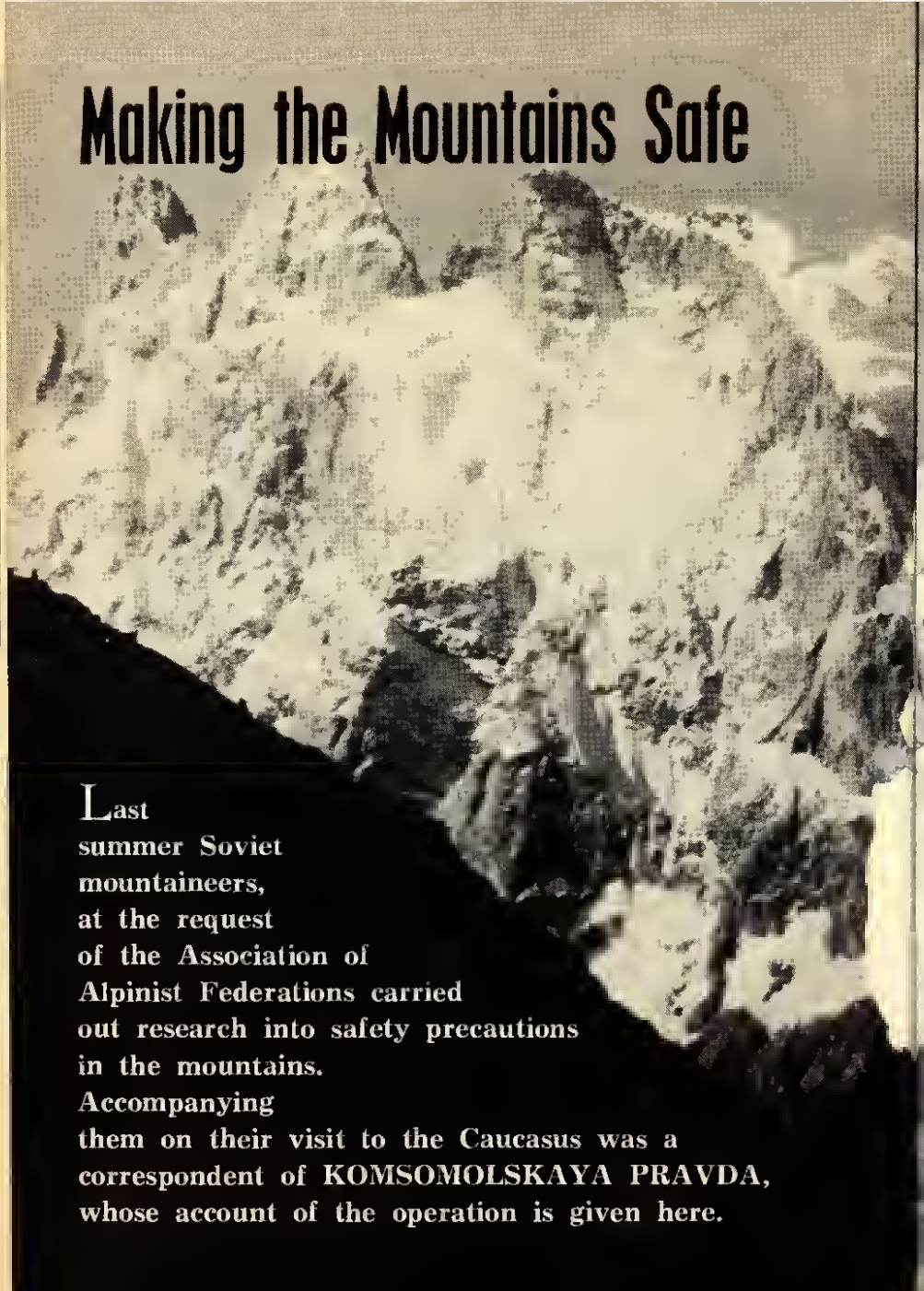
The bees have been found to signal to each other with the aid of various odorous substances. Man fails to catch their scents but the bee smells them from a long way off.

Along with its sting, the first bee leaves in the wound a small dose of such a substance. It acts as a magnet for other bees, which assail the man to protect their hives.

Many insects are guided by scent. The female of the gypsy moth, for instance, secretes a negligible amount of an odorous substance. However, it is quite enough to draw up to a million "bridegrooms".

From the magazine KRESTYANKA

Making the Mountains Safe



Shkhelda, a peak in the Central Caucasus. This is where the expedition did its work.

Vitali Abalakov, leader of the expedition.

Last summer Soviet mountaineers, at the request of the Association of Alpinist Federations carried out research into safety precautions in the mountains. Accompanying them on their visit to the Caucasus was a correspondent of KOMSOMOLSKAYA PRAVDA, whose account of the operation is given here.

by Alevtina LEVINA
from KOMSOMOLSKAYA PRAVDA

"The wise man to the mountains does not go, he knows that it will bring him woe" — so runs an old saying. It is quite possible. If they are wise, why should they wear themselves out! Boots feeling like lead weights, so that you can hardly lift your feet off the ground. Eyes unseeing — from the blinding sun, from strain. You look upwards — how much more torture lies ahead! You are horrified. This scarcely perceptible track has no end.

And that is if you are not laden with baggage. If you are, you will be carrying a rucksack containing everything but the kitchen sink: ice-axes, pitons, hammers and all the rest of it. As the wags have it, "Alpinism means the transfer of a weight to great heights".

One step. And another step. Your legs can scarcely keep going. Imagine the staircase in your block of flats multiplied by a couple of hundred times. Plus a merciless sun. Plus very awkward "stairs". We have to spend one and a half hours climbing such a staircase.

We emerge onto a crest, and gulp in the cold air. Higher still is something huge, smooth, greyish-blue. Little blue lumps have broken off it. It's a glacier!

We crawl along the frozen ridges. As we approach the glacier it looks like a layer cake, with bands of brown, pink and cream. Cracks bar our way. They are a delicate blue, and seem to glow from within. They are fathomless.

We call a halt. Here, by these gigantic walls of ice, these "icebergs", is where we shall start working. A team of ten experienced mountain climbers, all of them engineers in various spheres and nine of them masters or merited masters of sport, have to test safety methods and self-preservation techniques, and try out new mountaineering equipment.

They begin . . .

Some of them are hammering pitons into the ice. They hammer them in straight, crooked, from above, from below. Lento, moderato, allegro . . . Others try to break down a pillar of ice around which a rope has been thrown.

"Two hundred. Three hundred. Four hundred . . ." How many pounds of weight the dynamometer registers! The ice pillar groans, but holds fast. "Six hundred, seven hundred. Seven hundred and sixty . . ."

My God, how tedious. Where is the danger, the risk, the romance, reputedly the inevitable concomitants of an ascent?

"Eight hundred. Nine hundred . . ."

All this counting is enough to send one to sleep. Nearby someone else is counting the blows of the hammer knocking the pitons into the ice. These are not mountaineers but carpenters.

One hour passes, then another (altogether this is the third week), and the masters of sport, those athletic engineers, are still tapping away zealously with their hammers. They explain that there are no two inches of snow alike. Some is dense-packed, some damp, some fresh-fallen, like shifting sands. Ice varies a great deal, too — in the way it resists, in the way it holds, and one has to find out which kind it is. That is not a matter of guesswork, but is done with the aid of objective scientific methods. At the end of the day there is a sensation: the ice pillar, with a diameter of no more than six inches, has withstood an incredible strain of 1,800 lbs. The instructions recommend cutting out very, very thick pillars of this kind, indicating that the thicker they are the more reliable they will be. But there is

no time to waste during an ascent. "Now we shall be able to recommend with clear consciences that thinner pillars may be used for safety precautions . . ." Vitali Abalakov, leader of the expedition says. He explains that the aim of the expedition is to produce a new manual and a training film about "how to survive in the mountains".

It is evening. We are descending. This is far easier. Only now do I notice the white and pink banks of rhododendrons along the track, the silver birches just bursting into leaf, only now do I hear the song of the nightingale. Up here the spring has begun.

We have a fine view of distant heights. Beyond the nearest mountains the proud head of a giant is raised from a collar of clouds. In different languages his name has different meanings — Mountain of Happiness, Snow Crest, A Thousand Mountains, King of the Mountain Spirits . . . It is Elbrus, the roof of the Caucasus.

After the ascent of Everest journalists flung at the climbers: "Did you have any material incentive to do the climb or was it just a kind of madness? Why were you so eager to get to the top of Everest?" The answer they got was: "Because it happens to be there!"

This is the wisest answer there

A fine but 100 per cent reliable rope is indispensable.

is to those who ask why people climb mountains.

Mountains are more inaccessible than is commonly thought. Human beings reached both the North and the South Poles before they successfully assaulted Elbrus. They penetrated the stratosphere before they reached a 25,000 feet summit. A man got to the moon only a few years after his fellow creatures gained the peak of Everest.

The mountains are standing up very well to our highly technical world. Abysses, avalanches of snow and stones, sheer rock-faces, terrible storms, rarefied air — these are some of their weapons against men. Those who dare enter into single combat with the mountains must be cautious and careful, courageous and strong, and just as hardy as the mountains themselves.

Some people imagine that alpinism is a super-dangerous variety of sport, if not downright suicidal. Yet Abalakov has been leading a team on complex ascents for twenty years now, and they have not had a single accident. Luck? Why aren't others so lucky? "The unlucky ones," says this veteran of the mountains, "are those who are careless about safety precautions, do not have a thorough grasp of climbing techniques or are not sufficiently serious about their climbing. The

The Kashtakash Glacier — the expedition's proving ground.

mountains will not pardon this kind of approach."

High in the mountains we came across a solitary grave. A man wanted to conquer the mountains alone. But the mountains are not fond of the lone traveller. "What I like most of all about mountaineering is the fact that it has to be done in a team." I heard this kind of remark from Abalakov several times. Alpinism is not simply a sport, it is also a school of comradeship. The mountaineers set great store on affinity between members of a team, and if there were such a terms as "coefficient of affinity", I am sure that the score on this expedition would be very high. These people have been going about together in the mountains for 40, 30, or 20 years . . .

A quarter of a century ago, three of them — Abalakov, Arkin and Chemodakov tested on this very same glacier a selection of alpine equipment that is now carried by every single team that makes an ascent.

At the Shkhelda mountain camp we saw a fascinating film about the assault on the country's highest summit — Peak Communism (7,495 m). It was full of drama, and a rugged grandeur. Unfortunately, there is only one copy of it. Now Pyotr Skorobogatov, the man who shot the film, is the cameraman for our expedition, and is shooting the training film about safety precautions in the mountains. He has been up three mountains of over 20,000 feet and altogether set foot on dozens of mountain peaks and high passes with his cinecamera. In the camp we celebrated his birthday, and found that he was 65!

The veterans of the present expedition have numerous books, articles and manuals to their credit. And about them others have written books and stories, have made films.

Even people who do not dream of going mountain climbing know the name of Vitali Abalakov. It is synonymous with mountaineering. For me, one thing was a discovery: in the team, which had been assembled entirely on the voluntary principle, without financial inducements or administrative pressure, the leader enjoyed unquestioned authority. Without once raising his voice, reading a lecture or issuing any reprimands, he maintained ideal discipline.

These are the people who at the request of the International Association of Alpinist Federations were carrying out trials of safety precautions in the mountains.

The first thing some foreigners who arrived at the Shkhelda camp asked was: "Which of your great mountain climbers is here?" "Abalakov," someone told him. "Where is he?" "Up on the top. Look, here's his son." Oleg Abalakov was just preparing for an

ascent in the Pamirs. "And over there's his grandson, ten-year-old Igor."

Climbing mountains is more than a sport. "We cannot rest until we have measured our strength against theirs," said Sir John Hunt, who made the ascent of Everest. There was no height, no depth, he said, that could not be attained by man possessed by the spirit of daring.

Day after day it is the same old twisting track. The weather is superb. Now the glacier is swarming with people. Novices from the camp have come out for their first sessions on the ice.

Today they are having instruction in various types of safety techniques on steep slopes. Volodya Zaitsev and Farid Ulumbekov bound with one rope ascend and descend the sheer ice face. If one loses his footing the other will balance him. They have to demonstrate this in front of the cinecamera. But it looks as though we'll have to wait for ever for one of these first-class climbers to fall. Eventually Abalakov has to give the command: "Come on, fall!" They have to do it once, twice, three times. As they fall, one's heart stands still. But safety techniques mean safety and after dangling about on the ends of the rope they climb safe and sound to the top.

The filming begins. But here, as if by some law of contrariness a cloud blots out the sun and shooting is impossible. We sit and wait for the sun. We wait half an hour, an hour, more . . . It is noticeably colder now. "Chief, how about a coat and some cocoa!" calls Farid from the ice wall.

"You'll have to make do with that inner moral glow to warm you up," Abalakov jokes back. "Just enjoy the marvellous view!"

At last the sun comes out again.

Now two climbers, their legs braced against the face, try to haul a third climber down. Then Zaitsev has to fall from the ice slope several times and brake his fall with his ice-axe.

The rest of them are tirelessly banging in pitons, cutting out pillars, and stretching the rope through the dynamometer. Later on, future alpinists will read the theoretical conclusions in books and will study the coefficients and percentages of reliability and stability determined here, on Kashkatash Glacier. Perhaps these researches will form the basis of the first book in the history of world mountaineering literature on safety techniques in the mountains.

In the evening the novices come to our camp. Stricken with embarrassment they present Abalakov with a bunch of wild flowers and invite him to their campfire. Tonight's will be the farewell campfire, and in farewell a favourite song of the mountain climbers will sound out — "Remember, comrade, the white, white snow . . ."

Next morning we descend.

That's all. Now, at last, it is possible to take off those clodhopper boots. No need to shiver in your sleeping bag and wake up from time to time to hear the patter of rain on the roof of the tent. No need to keep clambering up that sickening track until your eyes see nothing but blackness, no need to fry in the sun and freeze on the glacier. On to the valley, to comfort and civilisation.

"The wise man to the mountains does not go . . ." But I am sorry for the wise man. He is depriving himself of a unique experience.

Kashkatash Glacier — Adyl-Su Gorge, Central Caucasus

ICE METEORITE

Inhabitants of the district centre of Yagotin, near Kiev, in the Ukraine, witnessed a rare phenomenon: the fall of an ice meteorite. The block, weighing 34 pounds, crashed down on one of the town streets. Its fall created a pit and the meteorite smashed into greenish fragments. Some of them were collected and the remaining ice melted, forming a white coating resembling common salt.

Commenting upon this unique occurrence, scientists say that since the sky was cloudless it can hardly have been a giant hailstone. All witnesses agree that they neither heard nor saw a plane in the sky.

Investigation of the ice that melted revealed that besides water it contained frozen ammonia, methane, carbon dioxide and other gases. These components, together with cosmic dust, comprise the nucleus of a comet.

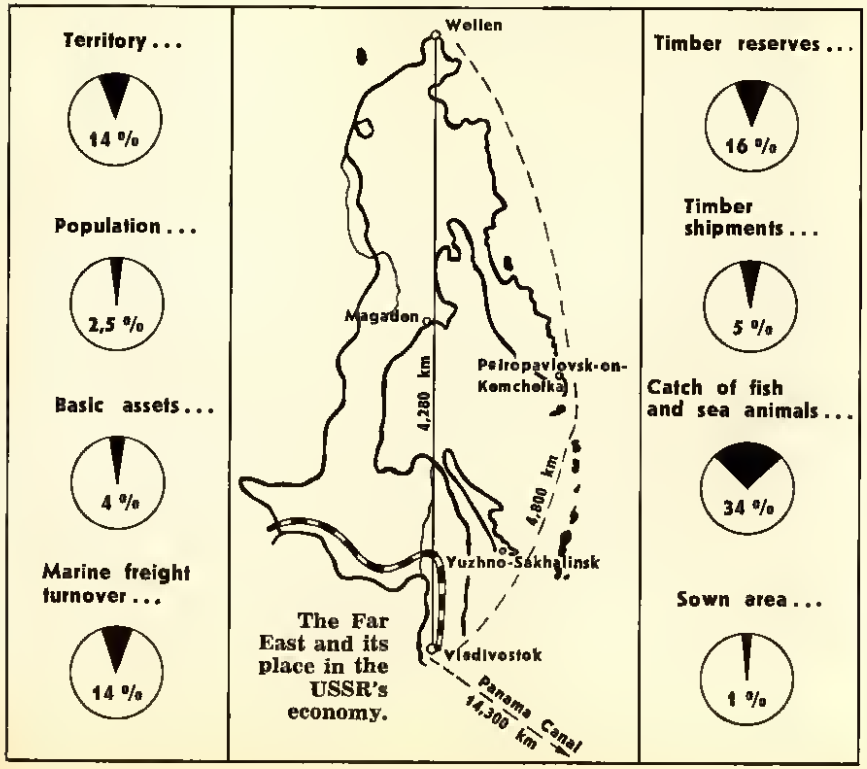
The speed of the ice meteorite relative to the earth was minimal, about 10.5 miles a second, and the block moved in the direction of the earth's rotation round its axis, west to east.

Though one meteorite falls on our planet, on the average, every quarter of an hour, meteorites can be seen falling very rarely, and their remnants are seldom found. Most of them burn up before reaching the earth.

From KOMSOMOLSKAYA PRAVDA

from the book SOVIET FAR EAST: OUTLINE OF ECONOMIC GEOGRAPHY

THE SOVIET FAR EAST: a world of change



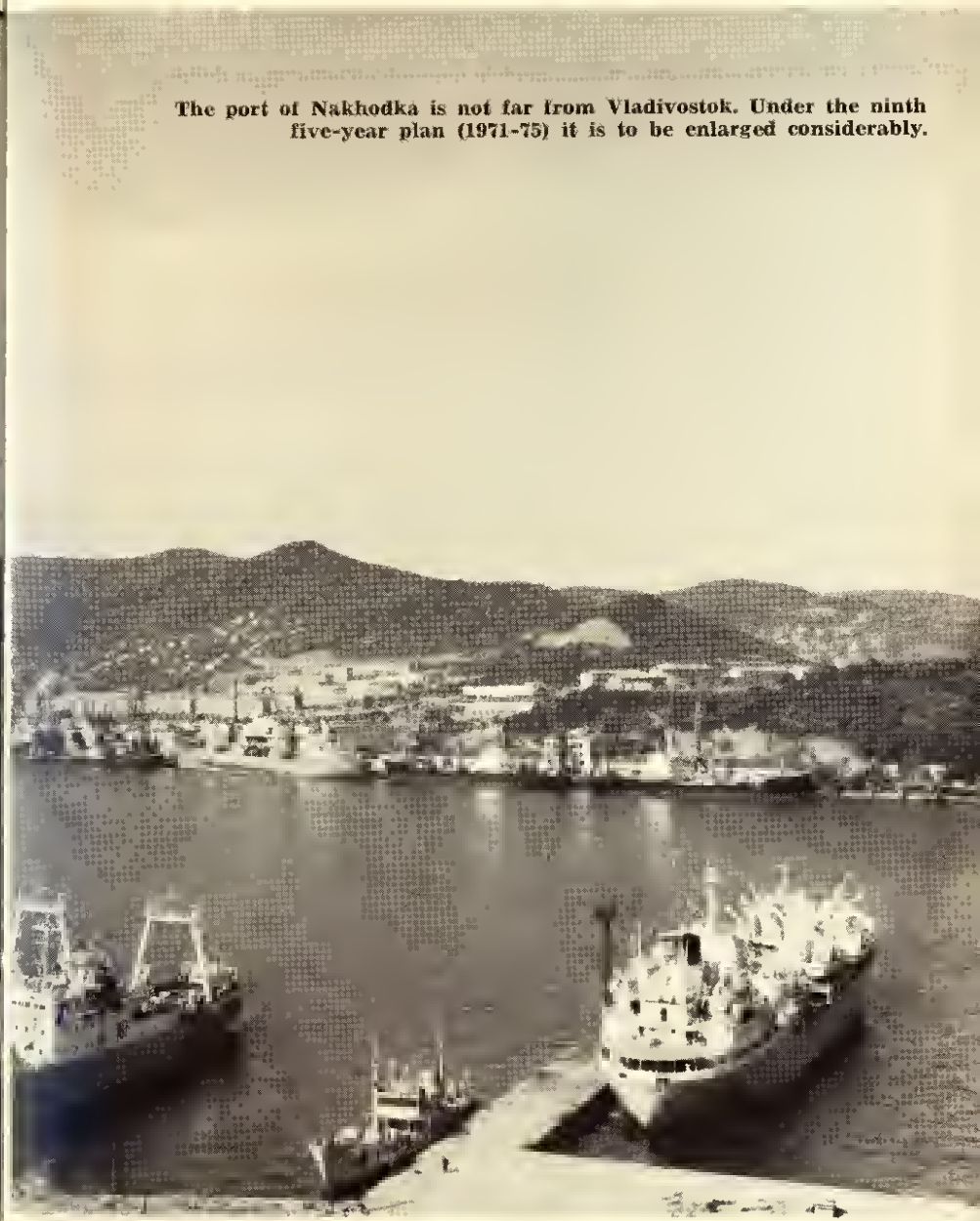
The Soviet Far East has a territory of more than three million square kilometres (equal to almost one-third of Europe), a multinational population of five million and immense natural wealth.

Here is a brief survey of its history of occupation and development and an account of the changes that have given it a new look since the 1917 Socialist Revolution.

The tiger next door to the polar bear? It sounds like a zoo or a circus. But the two are found together, in the natural state, in the Soviet Far East, as if symbolising its natural contrasts.

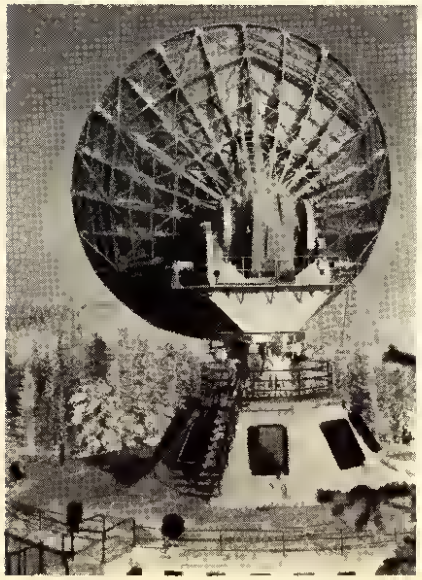
It is an area of amazing diversity. There are contrasts at every step. As one travels through the Far East one can admire turbulent mountain streams and majestic rivers of the plains... In Kamchatka, underground hot springs make fruit and vegetable growing feasible even in the unimaginably severe winter; fiery torrents of lava run down the snow-clad slopes of volcanoes; powerful natural fountains gush forth through the rocky ground in Kamchatka's Valley of Geysers.

One explorer of this part of the country, Dr. Vladimir Komarov, a distinguished botanist and President of the USSR Academy of Sciences in the thirties and



The port of Nakhodka is not far from Vladivostok. Under the ninth five-year plan (1971-75) it is to be enlarged considerably.

Chukchi bone-carvers are renowned for their traditional art.



A station of the Orbita communication system near Okha (Sakhalin). Receiving and transmitting apparata of this kind, amplifying signals from communication satellite MOLNIYA-1, have brougbt television programmes from Moscow and other places within reacb of tbe local residents.

forties, called this unique land a "world by the ocean".

It is a most apt definition: the proximity of the huge Pacific Ocean makes itself felt throughout the length and breadth of this vast region, which stretches close to 4,300 kilometres from north to south.

Consistently, in that land of contrasts the impact of the ocean also takes different forms. In the north, the icy breath of the Bering Sea freezes Chukotka and Kamchatka. In the south, moist warm monsoons moderate the cold on Sakhalin, the Kuriles and the coast of the Sea of Japan. The Soviet Far East embraces the zone of permanent frost with its tracts of tundra and southern forest-steppes resembling the North American prairies, with coniferous taiga and deciduous forests in between.

Its frost-resistant plants neighbour on heat-loving varieties. Its plant world includes Siberian stone pine and corkwood, and when reindeer are digging lichen from under the snow in the tundra, lotus are blossoming on the lush-green shore of Lake Khanka. Rye and rice, soya and egg-plants are cultivated in the fields around the lake.

The Far Eastern animal world is equally varied and includes Ussuri black bear, Sakhalin brown bear, Siberian red dog, raccoon-dog, Manchurian wapiti, white-whiskered Japan pig, Ussuri turtle, boa constrictor and Ussuri pheasant. Bodies of water in the Far East are rich in Amur sheatfish, Siberian salmon and sturgeon... The Soviet Far Eastern rivers abound in fish. On the Amur, the annual fish catch exceeds 20,000 tons, 5 per cent falling to the share of the salmon family. The seas offer a vast field of whaling, sealing and crabbing...

A rural boarding school for reindeer breeders' children who need medical treatment (they receive this and continue their lessons) on Kamchatka.

No other Soviet fishing or hunting grounds can compare with the Far East in diversity — here people catch about 300 varieties of fish alone.

A complete list of the special features of Far Eastern nature would take up too much space. But it is already obvious that the scientific exploration of the Soviet Far East — both theoretical and practical — is of immense interest. However, though it began to be settled and developed long before the October 1917 Socialist Revolution it virtually remained a blank spot on the map of Russia in pre-Soviet times.

* * *

The incorporation of the Far East into Russia was a natural sequel to the opening up of Siberia, which began as far back as the sixteenth century. In that rich but wild, primeval country Russian pioneers found a sparse population comprising nomad and semi-nomad tribes still in the primitive commune stage of development.

In addition to discovering the nature and people of the Far East and charting local surveys, the newcomers from Russia founded settlements, which gradually expanded, catching up increasing numbers of the indigenous population in a settled way of life. As a result, farming and industry gained ground in that part of the country.

Within a historically short time (in the seventeenth and eighteenth centuries) more cultured

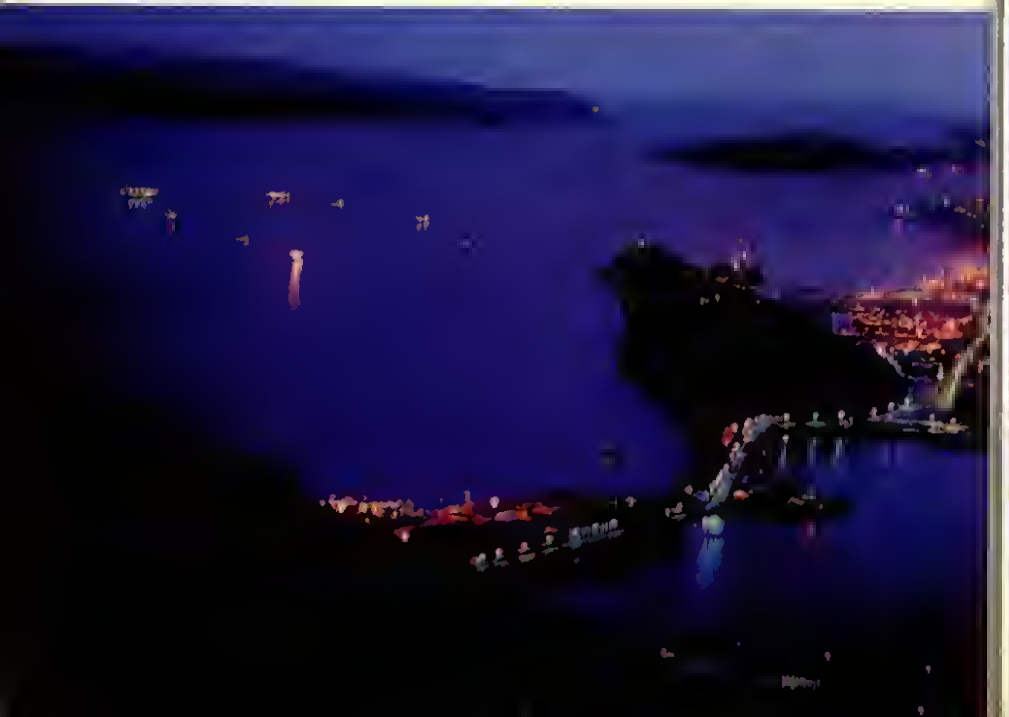
An oilfield on Sakhalin. More and more derricks are making their appearance on the island, and before long the bits will be eating into the sea bed.

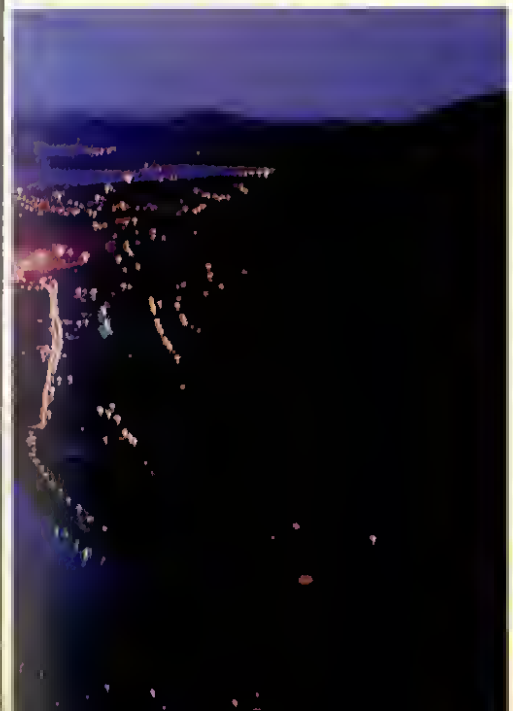
peoples — mostly Russian and Ukrainian — developed that fringe of the Asian continent — both its southern part, the "promised land of Dauria", and its rigorous northern part, extending to as far east as Alaska and even to Alaska herself: before the czarist government sold that land for a trifling sum to the United States in 1867, it was known, with reason, as Russian America.

The nineteenth century saw the construction of railways, harbours and industries in the Far East.

Kamchatka. This 1,600 km-long peninsula has a unique natural beauty.

A LAND AWAKENED FROM SLEEP





The town of Petropavlovsk-on-Kamchatka. In the past decade its population has almost doubled, to reach 154,000. Altogether the Kamchatka region has a population of 290,000 (in 1911 the total was only 11,000).

The key mining industry there was gold extraction, which from the very first was large-scale capitalist enterprise. Other branches of the economy developed in the Russian Far East but not at the speed and scale the extremely rich local resources merited.

New vistas opened up to the Far East with the advent of Soviet power, which carried out socialist changes.

* * *

The October 1917 Revolution was followed by intensive eco-

nomic development, including industrialisation, which finally measured up to the immense resources of the Soviet Far East. A number of state industrial associations were set up to exploit local assets, and as a result of the five-year plans introduced in the USSR there was a most rapid economic and cultural advance in this region.

State planning for the country as a whole — and the Soviet Union was the pioneer in this — solved the task of bringing backward outlying areas to the level of the more advanced central part of the country.

Before the Second World War, rates of economic and, even more so, industrial advance in the Far East were higher than in the Soviet Union as a whole. The war put on the brake, but the tempo increased again as soon as the war had ended.

Now the Soviet Far East is a large economic region of the USSR. Though it has only 2 per cent of the total population, production there has achieved an impressive level, and the region has about 4 per cent of the capital assets of Soviet industry.

The food and fish industries of the Soviet Far East turn out about 35 per cent of the region's overall output, the engineering industry 20 per cent and the

Researchers from the Vulcanological Institute of the USSR Academy of Sciences installing devices that will keep watch on the behaviour of this fire-breathing mountain.

The Kurile Islands and the Kamchatka Peninsula are the only area of live volcanoes in the USSR. There are almost 70 of them — this is about one-seventh of all the active volcanoes in the world. As they study this formidable, elemental fiery force the scientists aim not only to understand it but to harness it for man.

WHERE CONTINENT AND OCEAN MEET THERE IS WIDE SCOPE FOR SCIENTIFIC RESEARCH

One of the main tasks of the Far East Scientific Centre is to broaden the scope of oceanological research. An important role is assigned to the study of marine fauna

timber industry 13 per cent. The shares of other industries are comparatively small.

But take gold-mining. In the north-east (Magadan Region), gold-mining was not carried on at all in pre-Soviet times. But only a few years after a trust was set up in 1931, this region was ahead of the rest of the Soviet Far East in gold output and, subsequently, of the rest of the Soviet Union. It has held the lead firmly and is likely to retain it, at least for the foreseeable future.

Only a few gold deposits and one polymetallic deposit were worked in the Soviet Far East before the Revolution. Now tin, tungsten and many other precious metals are mined. And other things, too — including oil.

Sakhalin, which in Soviet years has earned the reputation of being a real "treasure island", has developed an oil industry — something the czarist government failed to do, although the presence of oil there had been obvious for a long time: the State Geological Committee and private industrialists tried, but failed to discover it. Only Soviet experts estimated the amount of oil, gas and other items of mineral wealth to be found in the Soviet Far East. That was followed by extensive mining.

The deeper the prospecting for mineral resources, of course, the broader the prospects for their development.

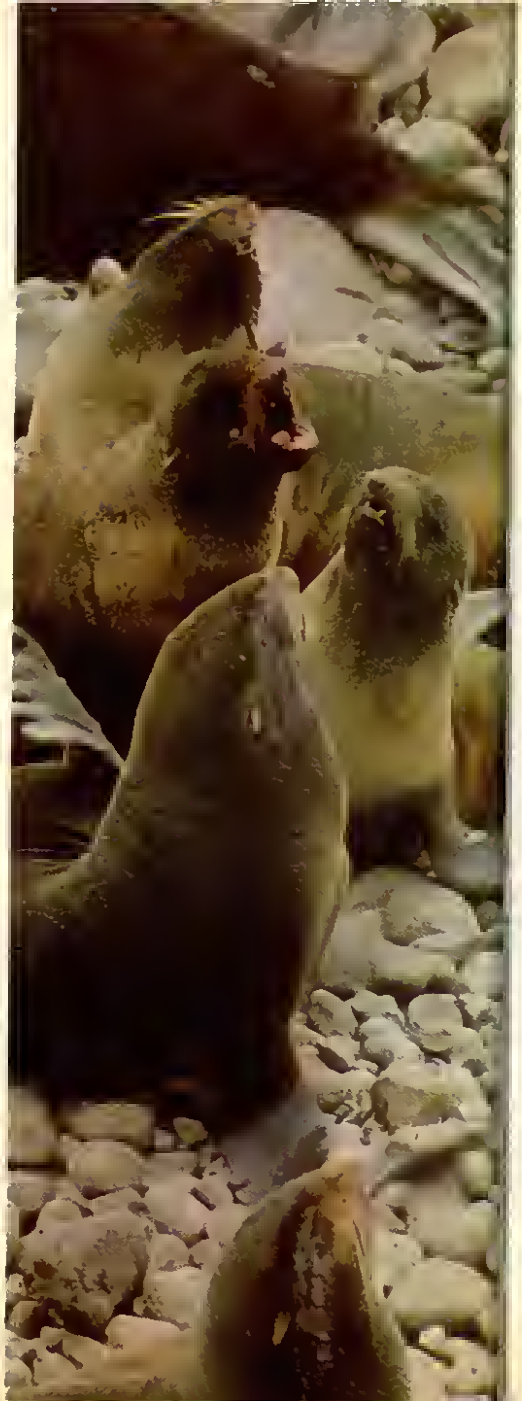
* * *

The Soviet Far East largely owes the rapid advancement of its productive forces to rapid electrification, the overall plan for which Lenin called a "second Party programme".

Currently, the electricity output there approaches the Soviet Union's average of about 2,000 kilowatt-hours a year per head of population. True enough, the Soviet Far East, which occupies 14 per cent of Soviet territory, so far has a population of just over five million. But then, a vast part of the Far East suffers from adverse climatic conditions.

In the Magadan Region, which includes the Chukotsk National Area, the January temperature drops as low as 50° below zero Centigrade. The permafrost layer (about 500-metres thick) thaws out only to a very small depth and only in summer, which is extremely short in those parts. So there is an urgent need for the intensive advancement of the power industry, which could warm up the Soviet Far East and transform its natural conditions. With modern science and technology this is a practicable task.

Recently, the Soviet engineers designed a transportable atomic power station, the Sever. Its comparatively small capacity of 1,500 kilowatts is enough for a settlement with a population of

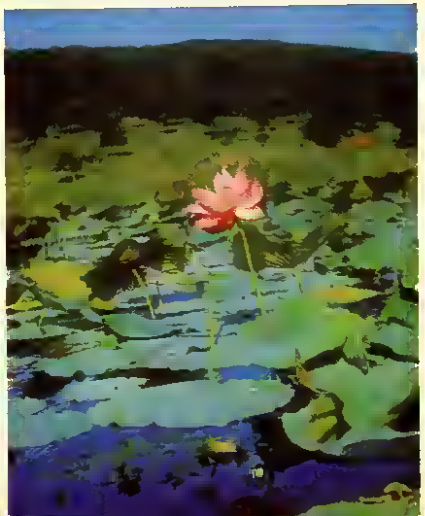


Sea bear rookery on the Komandorskiye Islands. A herd of these animals is an interesting object of study for specialists.

THE WORLD OF THE OCEAN SHORE AND ITS STRIKING VARIETY

Kamchatka's Valley of Geysers is one of the few of its kind in the world.

The natural colours of the Far East: partridge in the near-Arctic tundra (top left), the evergreen taiga (bottom left), and the lotus of the southern forest-steppe (bottom right).



Svetlana Lenskaya — of the staff of the Vladivostok Institute of Marine Biology, the Far Eastern Science Centre, set up in 1970.

VLADIVOSTOK AND MAGADAN — SOUTHERN AND NORTHERN FOREPOSTS OF FAR EASTERN SCIENCE

3,000. It is a very convenient affair, easily transported and assembled and requiring an operating staff of only three workers per shift. Its heat can defrost the perpetually frozen ground, which means that mining can go on all the year round in the most rigorous of conditions and in barely accessible places (the station's components can be flown to the spot).

Now the Magadan Region is building its own large stationary atomic power station, the Zapolarnaya. But there are other potentials for developing electricity and heat supplies. The Far East has vast heat resources concealed in its hot underground waters, which are already being exploited — their power is being used for heating by the Lenin Collective Farm in Chukotka, a sanatorium at Talaya in the Magadan Region and the Paratun vegetable hothouses in Kamchatka. The Soviet Union's first geothermal power station was put into operation in Kamchatka in 1967.

The Soviet Far East has lasting resources of conventional water power. Very conservative estimates put them at around 50 million kilowatts, 15 per cent of the country's aggregate. The Amur and its tributaries alone have enough potential for 50 hydroelectric stations, which could produce 75,000 million kilowatt-hours a year — more than 10 per cent of the Soviet Union's aggregate in 1970.

Magadan (founded in 1933) has become the "capital" of the northern part of the Soviet Far East; the town's scientific institutions are working on problems involved in opening up the North-East.

Fresh prospects are opening up to other branches of the economy in the Soviet Far East.

* * *

The scope of construction

Dancers of "Ergyron" ("Dawn"), a Chukchi-Eskimo ensemble.

One of the hothouses belonging to a nursery heated by underground thermal water (Kamchatka).

provides the most striking evidence of the advances made in the Soviet Far East since the Revolution. The cities of Komsomolsk-on-the-Amur, Nakhodka, Magadan and Sovietskaya Gavan have sprung up in the middle of nowhere. Khabarovsk, Vladivostok and Blagoveshchensk have expanded and changed beyond recognition.

In addition to new railways, highways and modern motorways (one, almost 1,000 kilometres long, connects Magadan with the Kolyma area) have been built. Its towns and townships have regular air services. Its ocean gateways handle an endless stream of passengers and cargoes.

Homes and public amenities continue to be built. There has been a more than tenfold increase in population in the last 70 years, and each year great numbers of volunteer settlers are attracted to the Far East — they are offered various privileges. Under the current five-year plan supplementary pay for those working in a number of areas in the Far East is to be increased for many branches of industry.

Every year hundreds of workers' townships and hundreds of industrial and agricultural enterprises are built. New railways and motorways are being constructed. The port of Nakhodka is expanding. New TV centres are coming into being. The Orbita centres, via the communication satellite Molniya, pick up telecasts from Moscow. Training centres and research institutions are opening one after another.

In 1970, the Far Eastern Science Centre was set up in Vladivostok, and is working on problems raised by the continual exploration and mastering of that country's resources.

The Directives of the 24th Congress of the CPSU for the ninth national economic plan period (1971-75) provide for the accelerated development of the Soviet Far East's productive forces. Now increases are expected

KEYS TO THE FAR EAST'S RICHES — ELECTRIFICATION AND ELECTRONICS

in its output of coal, tin, tungsten, mercury, gold and diamonds; work is to be completed on the enlargement of the oil refinery in Komsomolsk-on-Amur, construction of another refinery and of a hydroelectric station on the Kolyma is to be started, the first units of what are to become the Zeya hydroelectric station and the Maritime thermal power station are to be put into operation, and seaports and moorings reconstructed and expanded.

In agriculture, it is planned to produce more soya, rice and reindeer-breeding products, to bring 77,500 acres of irrigated land under cultivation, drain 900,000 acres of waterlogged territories and develop an area of 500,000 acres.

Priority will be given to the construction of homes, public amenities, and buildings for social and cultural purposes. One of the major tasks laid down in the Directives is to create conditions that will draw greater numbers of settlers to the Soviet Far East.

The Artyom state district power station, built in 1936, is today one of the biggest heating and power stations in the Far East. But the Zapolyarnaya atomic power station now under construction will be even bigger.

Far Eastern gold. The basin of the River Kolyma is the chief gold-mining area in the Soviet Union.

The North-East Complex Research Institute in Magadan. The Computer Techniques and Programming Laboratory.

Since the institution of Soviet power not only the Koryak and Chukotsk national areas have been set up in the Far East but also the Jewish Autonomous Region (it is part of the Khabarovsk Territory). The Jewish Autonomous Region was formed in 1934.

Lev Shapiro, First Secretary of the Regional Committee of the Soviet Communist Party in the Jewish Autonomous Region.

The JEWISH AUTONOMOUS REGION is a part of the country known since ancient times as "the blessed land". It covers an area of 36,000 square kilometres — more than Belgium. It has 250 centres of population, including two cities and 12 urban-type settlements. The population does not consist solely of Jew but includes other nationalities.

The region has 50 large industrial enterprises, turning out such goods as combine-harvesters, transformers, tin, cement, timber, paper, furniture and knitwear. Its 25 collective and state farms occupy more than 1,250 thousand acres of land between them.

In the JEWISH AUTONOMOUS REGION there is not a single community without its school, club cinema, etc. Altogether it has eight special secondary schools, and a number of music schools, and two theatres — Jewish and Russian. The local radio puts out daily programmes in Yiddish and Russian.

The newspaper BIROBIJANER STERN on display in showcases in the street.

The Birobijan Knitwear Factory.

Birobijan, capital of the Jewish Autonomous Region.

On the fields of the Zavety Ilyicha Collective Farm, founded in 1932. Today the farm has 320 households and 630 people working on the land. They have at their service 65 tractors, 25 self-propelled caterpillar combines and 35 lorries.

Semi-domesticated deer. Their young, soft antlers, which grow anew each time they are removed by specialists, are the source of valuable medicines.

UNDER SCIENTIFIC CONTROL — ANIMAL BREEDING AND PROTECTION

Many state farms breed mink and other fur-bearing animals with various coloured pelts.

The Ussuri tiger. Hunting is banned — it may only be caught for zoos.

Hunting bear with a dog? Yes, but this hunter manages without bloodshed — all his shooting is done with a camera.

A new day dawns over Chukotka.

FOR 1971-75
THE DIRECTIVES OF THE TWENTY-FOURTH CONGRESS OF THE CPSU ENVISAGE...

Vladivostok: the city grows in both breadth and height. New construction work in progress is the hallmark of the Soviet Far East.

that measures to hasten the exploitation of the natural resources and the growth of the economic potential of the country's eastern areas shall be regarded as a most important task in the geographical distribution of the productive forces and improvement of territorial proportions in the national economy...

STAMPS

TOURISM IN THE USSR

A multi-colour series of postage stamps "Tourism in the USSR" wes issued recently beering verious mioie-tures of interest to tourists. They ere rep-resentetions of the couotry's neturel beeu-ties, cultural tree-sures eod other note-worthy sights which mey be seeo by tourists. Designed by Anetoli Axemit, they ere reproduced hy e combioetion ef io-teglio eod copper plete printieg. Herrow perforetion 12×11½. Cefelogue nos. 3979-3984.

4 kopeck
"Architecture".
Centre — St. Besil's Cethedrel, Moscow (1555-60).

6 kopeck
"Art".
Centre — scene from the bellet "Swen Leke".

10 kopeck
"Hunting".

12 kopeck
"Souveeirs".

14 kopeck
"Museums". Centre — Yevgeni Vuchetich's sculpture "Beet Our Swords into Ploughsheres".

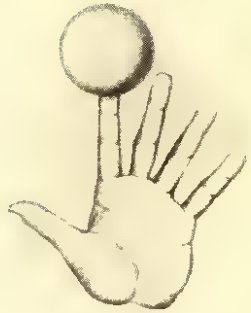
16 kopeck
"Touring by Cer".

Sergei Obraztsov and His Theatre

I.

How It Began and Why It Did Not Stop: the Actors Speak About Their Theatre

from the book THE PUPPET THEATRE OF SERGEI OBRAZTSOV



AN UNKNOWN TELEPHONE-GIRL

Whether it happened long ago or only recently depends on how you feel about it.

Those who began it feel as though it were yesterday. Better to describe the circumstances, time and place of the beginning. Then everything will become clear.

The time: 1931. Spring. Moscow. Sadovsky Lane. That was where the Central House of Art Education of Children, with its department of Children's Theatres, was located.

The department had a manager and the manager had a telephone. She used it to call up Sergei Obraztsov, who was a member of the Moscow Art Theatre company and who also put on individual concerts of songs and puppet shows. Obraztsov was asked to set up a puppet theatre in the Central House.

Sergei Obraztsov with his favourite puppet, Tyapa.

Since telephone connection in those days required the services of a switchboard-operator that unknown telephone-girl should be held responsible for the fact that in the autumn of that year six actors, three musicians, one set-designer, one joiner and one dress-maker gathered together in a small room in that building in Sadovsky Lane in order to discuss their new venture.

THE START

Every theatre must have its credo. So we devised one, too. "We will not perform with puppets what can be performed better by people."

A weak credo. Negative. But it helped a lot. It made us create our own repertoire instead of using material that was not written for puppets.

"SEAGULL"

The Moscow Art Theatre chose as its symbol Chekhov's **Seagull**. We also have our "seagull". It is not a bird, though. It is a fish. The full name of our "seagull" is **At the Pike's Command**. We first staged this Russian fairy-tale in 1936.

Before the **Pike** we had staged other things. Two of them are still in our repertoire. But for some reason the **Pike** became our symbol. Perhaps because it summed up the results of a four-year quest for the form appropriate to puppetry. We cannot say exactly how it happened, but we all love our **Pike** tenderly. We have played it more than 2,000 times and wish it many more years of stage life.

ANOTHER "SEAGULL"

Since we deal with puppets and not with people, we have our own way with everything and we have not one "seagull" but two. The other one is not a bird either but a household object — a lamp. **Aladdin's Lamp.**

Aladdin's Lamp was our first show for adults. For a long time we hesitated to announce an evening performance on the playbills. We feared that it might fail to attract adults. However, we played to a full house. We have staged **Aladdin's Lamp** more than 2,000 times, too, and we are still performing it.

Since the day Aladdin, son of Hassan, first sang his song, our theatre has been playing matinees for children and evening shows for adults daily.

"WHERE'S THAT STREET? WHERE'S THAT HOUSE?"

In between our two "seagulls" we staged several other plays, some of which have been very popular with audiences. **Big Ivan** ran 273 times and **Puss in Boots**, 1,991 times. But the biggest thing

that happened to us during that period was the offer by the Moscow City Council, of a building in Mayakovsky Square. We left the premises of the Art Education House and formed a theatre in our own right. Our new quarters with a real stage, lounge, workshops and space for a museum seemed like a palace to us. We cried hurray!

Alas, dialectics are dialectics. As time went on our new building grew cramped. It just could not be helped. We are no longer a dozen or a score of people. There are over 300 of us.

Quite recently, we made another change of address. Now it is Sadovo-Samotyochnaya, also in Moscow's centre. We have two stages and two halls: one for children and one for adults. We have huge workshops, a large museum, a winter garden, fish tanks — we bring back little fishes from all over the world — and even a pool for a baby crocodile brought back from Africa.

Again we cry hurray!

THE TEST

We moved into the Mayakovsky Square building in 1937 and, very happily, worked in it for four years.

Then came June 22, 1941. War.

Exactly one month later a bomb fell close by and half-destroyed our theatre. We loaded our puppets and sets on a ship and sailed down the Moskva, the Oka, the Volga and the Kama. Then, by train, we reached Novosibirsk. We played in cities and villages, in military garrisons and hospitals. We composed a programme for the front and, in two troupes, moved to the front-lines. We played in dug-outs and in forest glades. Sometimes our "intermissions" were artillery shellings, and the chatter of anti-aircraft machine-guns forced us into unexpected pauses.

Once a Soviet fighter-plane roared right over our improvised platform. The puppet dog with Hitler moustache and fringe watched it fly past and then scratched the nape of its neck. Laughter shook the forest like a salvo and echoed through the glade.

In response to a request from the Siberian Military District Command, we taught Red Army-men to handle puppets, so 16 puppet companies sprang up at the front. Our anxieties as to our uselessness at the crucial hour for our country disappeared: we were needed.

FROM FIVE TO TWELVE

When the war ended, bricklayers, carpenters, plasterers and painters restored the collapsed beams of the ceiling, repaired the walls, painted everything and we resumed work in our theatre.

Actor and puppet are one. They are like extensions of each other, acting in unison.

A song from the Gipsy choir — in the extremely popular "An Unusual Concert". ▶

Adam makes Eve's acquaintance — a scene from "The Divine Comedy".

A character from that perennial favourite, "Puss in Boots".

◀

Our youth was over. We entered a period of maturity. We had grasped a lot. We realised, for instance, that no show could be equally good for children of any age.

Six-year-olds, we discovered, differed from 10-year-olds more than 25-year-olds differed from 50-year-olds. We realised that little children should not be shown anything frightening. If the wolf eats Little Red Riding Hood before their eyes, it is a much greater tragedy for them than Othello is for adults. Adults mentally dissociate Desdemona from her impersonator and still they cry. But children believe implicitly in the authenticity of the wolf and do not just weep but scream with fear. Such shows only do them harm.

So for small children we staged **Happy Little Bears**, with nothing scaring. Nobody chased anyone, and nobody ate anyone. The little bears washed themselves, did exercises, ate, played their little pranks but that was all. The children were delighted. And they derived a lot of benefit. Mothers wrore ro say that their little ones had begun to do exercises like our little bears, without having to be reminded, and washed their faces and combed their hair like our little bears, and said "thank you" after dinner precisely like our little bears. But Buratino — a Russian version of Pinocchio — could be shown to children of eight and older. These children like to be slightly frightened and they demand that the hero should be bold, kind and just. For them we staged **Cinderella** and the **Frog-Queen**. For children of 10 and 12 we offer **Mowgli**.

FOR THOSE WHO HAVE ALREADY GROWN UP

Only adults attend our evening performances. Our main shows for them contain a lot of humour, parody and satire. We have put on the **Straw Hat**, a satirical comedy by Eugène Labiche, and **To the Rustle of Your Eyelashes**, a satire by one of our own actors, Yevgeni Speransky, about the making of Hollywood's commercial westerns. A detective satire, **Mine, Only Mine** was written by our artist Boris Tuzlukov. All its heroes are gangsters and they eventually kill each other off — to our way of thinking, a happy ending.

But our most popular show for adults is, of course, **An Unusual Concert**. It satirises the cliches and banalities of the variety concert stage. We have done this show 4,000 times and have no intention of giving it up. It is almost always included in our repertoire when we travel inside the Soviet Union and is invariably produced on all foreign tours. Our actors Speransky and Gerdt who alternate in the role of the Master of Ceremonies always announce in the language of the country we are in. They have performed in Polish, Bulgarian, Hungarian, Serbian, Czech, Romanian, Finnish, German, French, English, Italian, Arabic and even Hindi. Nobody knows how they do it. We do not understand a word but the spectators split their sides with laughter!

A CONFESSION

We must be honest and repent. Or else our conscience will give us no peace. Our maturity produced self-confidence — something that frequently becomes over-confidence. Nothing good ever comes of it. Our credo had a hole in it and only timely measures saved our ship from sinking. What was the hole? Negativity. We knew what we could not stage. But we did not quite know what we could. This is how we reasoned: an ordinary theatre never shows dogs, cows or bears. That means we can show them. An ordinary theatre never shows skating or diving. That means we can show these things. So we set about imitating real dogs and real bears and sailboats and snow and ice. All this "realness" — real beasts, real ice-hummocks, sea waves, pilots at the controls of their planes — are real only in films. In a puppet theatre it all becomes a sham "plaster-cast". To get away from the "plaster-cast" naturalism, we had to find a positive slant to our credo. We argued, heaped abuse on each other, found fault with each play and with every new sketch presented by an artist, until we realised that it was not the physical possibility or impossibility of staging a play that makes the puppet theatre differ from ordinary theatre or cinema and the puppet-actor different from the actor-human. What made the two systems different was the difference between the fairy-tale and the short story, between the fable and the satirical pamphlet, between Reineke-Fuchs and the silver fox. Wherein lies the difference? It lies in the degree of generalisation, or, to put it better, the generalisation that becomes an allegory. As soon as we realised that, we saw that our kin were Swift, La Fontaine, Krylov, Pushkin, Gogol and Mayakovsky. That did not mean that we had to stage their fables or fairy-tales. But our performances, we realised, must resemble their fables and fairy-tales. They must be as topical as their fables and fairy-tales were in their day, as sharp, bold and resolute in generalisation, typification and allegory.

SECOND WIND

Our over-confidence disappeared. But we were confident that the hole in our theatrical ship was repaired. We knew the direction in which to move, contemporary themes presented as allegory or fable — through complete generalisation of the image.

The Divine Comedy, by Isidor Shtok, was born when we had got our second wind. God, the angels and the Devil are performed by actors in masks, but Adam and Eve are puppets. The actors who manipulate them are not screened off. They are visible. After all, the souls of our forefathers were human — they don't have to be concealed. The plot is biblical but the subject is contemporary: human love.

One of our recent shows, Ee-ho-ho, is also an allegory but at the same time it is absolutely contemporary and "puppet-like". The author, Speransky, calls his play a popular-science fairy-tale: it is scientific because it is set in a research institute, but it is a fairy-tale because the director of the institute, Faustov, and his assistant, Margarita, use an "electronic device" to catch "the evil spirits": witches, werewolves, devils and mermaids. They exist, unfortunately.

We cannot say whether our ship will sail fast or slowly but it cannot stop: its engine is art and the shores it moves past are as wonderful and amazing as life.

WE SHOW PUPPETS AND THE PUPPETS SHOW US THE WORLD

By the age of 13, a person who has never been outside Moscow knows firmly that London is a city of fogs, that Prague is "golden", that Holland is a land of tulips, that Soviet Georgia is "sunny" just as Soviet Uzbekistan is, that India is a "land of miracles", that the Danube is "blue" and the Nile is "yellow", that the Volga is "mother-river" and the Mississippi is "Old Man River".

Later on, around the age of 16, man absorbs more complex definitions: a land of white gold, a land of black gold, the land of the rising sun. He learns that many countries are called lands of contrasts and many cities "another Paris".

Our company is already 40 years old and we have checked most of these definitions ourselves. Our puppets have taken us to many cities and countries. Frankly, not everything coincides.

This show — "Ee-ho-ho" — is for those who have already reached years of discretion.

"Mowgli" is for 12-year olds.

"At the Pike's Command" delights the tinies.

In Tashkent, capital of "sunny" Uzbekistan, on one October afternoon we saw snow, while in Moscow that morning the temperature was 13° above zero Centigrade. In the six weeks of our stay in London we never once saw fog, while in Cairo we had rain although we were fairly sure that it never rained in Cairo. As for Paris, we can say for certain that there can be no other Paris, for Paris is unique, it has its own voice, its smile, its pace, habits and manners.

Our puppets have shown us miracles, mixed up weather and reduced distances. We have taken off over snow-bound fields of Russia and later the same day landed on the green grass of India. We have tossed pebbles into the Mediterranean from the coast of Africa and from the coast of Italy. We have dived into the Adriatic and the Baltic. We have crossed the Atlantic at different latitudes, flown from London to New York and from Montreal to Glasgow.

We receive letters from foreign friends every day — from cities and countries we have visited, as well as from places we have never been to but will surely some day visit.

When, after a tour of some country we boarded a train, stepped out on an airfield or climbed the gangway of a ship, our new friends have waved good-bye and shouted in Russian **druzhba!**, we have always answered with the same word in their own language, having learned **przyjaźń, freundschaft, amitié, vrijndschap, friendship, priatel'stvo, barátság, sadaka, amicizia, prijetenje, přátelství, ystevyys** and **mitrata**. Quite a lot?

An old inhabitant of the theatre — the noble Aladdin.

And the far-from-noble gangster and his moll from "Mine, Only Mine!"

II.

The Man Who Has Not Forgotten His Childhood

For 40 years the Moscow Puppet Theatre has been directed by Sergei Obraztsov. Its official title, the State Central Puppet Theatre under the direction of People's Artist of the USSR Sergei Obraztsov, is commonly shortened to the Obraztsov Theatre. But Obraztsov is a singer, an actor, a film director, a scholar of architecture, a brilliant publicist, an essayist and a scenario writer as well as the creator and founder of the Puppet Theatre. Obtaining tickets for his occasional one-man recitals, held in his own theatre or elsewhere, presents a problem even to experienced theatre-goers.

The following review of an Obraztsov recital, with sidelights on his personality, was contributed by art scholar and stage director Boris Lvov-Anokhin to the weekly NEDELYA.

On a flood-lit stage stands a screen. Sergei Obraztsov walks on and begins to talk. He talks of this and that: of how infinitely grateful he is to his mother for having patiently endured through his childhood the various doves, mice, puppies and cats that he kept, thereby encouraging his affection for animals. This affection, he adds, should be fostered in all children. He cannot claim, he says, that every child who tortures animals will become a bandit but he is sure that every bandit, when a child, began by torturing animals.

Obraztsov says that he thinks it harmful to hold children's competitions and give children prizes for drawing, singing and poetry recitals — that it breeds vanity and poisons the child's genuine interest in art.

He gets angry, he says, when people fail to understand that each art has its own laws and that one story cannot serve for a film, a play, an opera and a ballet.

An Obraztsov recital is not like a concert though he shows his puppets and performs his well-known concert numbers. It is not like a lecture either, even though he talks about his profession, his theatre and art in general.

Most of all it is as though you were the guest of an extremely interesting person, who talks with you frankly and trustfully about the things that interest him and occupy his mind. He tells you about his childhood, his father and mother, his quest for a profession and a place in life, his abiding interest in fishes, trees and dogs, in music and puppets.

And though you do not say a word yourself, you involuntarily think about your own childhood, your own profession, your own attitude to art and life. And Obraztsov's monologue becomes, in fact, a dialogue with each member of the audience.

There is nothing pedantic about this talk. Obraztsov never lapses into a didactic or self-important tone. But it is a serious talk in spite of its pervading warm humour and abundance of witticisms. The listener feels that this talk, above all, is necessary to Obraztsov himself and therefore becomes necessary to him, as well.

Only later, afterwards, do you suddenly begin to realise that in fact Obraztsov's art is a very fine, subtle art, the art of complete ease and naturalness, that behind it there is system, that everything in it is well balanced, that the whole talk was full of artistry and intention, of ardour and calcula-

tion — in a word, all that is essential to any art.

But art alone is not enough. What is needed is a pressing necessity for such a conversation, a compelling aim. With all his lightness and ease, with the absolute naturalness of his conversational intonations, Obraztsov possesses something that is not usually a component part of a friendly chat over a cup of tea. He has a fervour, an urge to convince or, if need be, dissuade the listener, to make him see the world as he himself sees it, that essence which forms the heart and substance of any statement in art. You feel that Obraztsov is talking with you for the same reason that he stages his plays, writes his books and makes his films.

He attacks your lack of attention to life and its amazing manifestations, your preconceived notions and your habit of making hackneyed judgments, your preoccupation and matter-of-factness, which all too frequently dulls a fresh vision of the world and deprives you of so many joys. He wants you to become an artist whatever your profession. He wants you to keep your eyes open and retain a direct, unbiased perception of life. He fights your "oldness", your scepticism, he tries to persuade you to remember your "world of childhood", in which you and everyone else were always happier, purer and kinder.

Very much like a child, he gets angry at some people's unreceptiveness to art and its laws, the laws of the wonderful free play of imagination.

I remember an incident once with a little boy who lay face down on a carpet and with an air of great concentration imitated the movements of a swimmer. "Get up from that rug immediately! Stop that nonsense!" the adults told him crossly. He rose and angrily objected: "It isn't a rug! It's a river and I had almost swum across." The boy ran away offended.

Obraztsov wants adults never to offend children or artists, not to damage their faith in their own invention. He gets angry when he runs across mistrust in the conventions of the game — the wonderful conventions of art.

Perhaps that is why he has chosen the most conventional of the arts, the most "childish" of the arts. Perhaps that is why, an old man already, he still "plays with puppets". His puppets are mocking yet lyrical. They come to life before our very eyes. We laugh and are delighted by this wonderful human ability to breathe life into a bit of cloth and paint, to give character to a silly little puppet with beady glass eyes, to make two little balls of rags slipped over fingers look human and play a whole scene.

Says Obraztsov:

"I was born in Moscow in 1901. My parents had nothing to do with the arts. My mother was a Russian language teacher. My father was a scientist, a Member of the USSR Academy of Sciences and also the founder of a whole school of engineering. He could see decades ahead and visualise distant changes in the life of his country but he never used big words in speaking about science. He loved literature and art and could get carried away as he spoke about a book he had read or a play or film he had seen, but he never used pompous language and never exaggerated his emotions. His retelling made everything sound both interesting and natural.

"In speaking about art we never used words like 'lofty calling' or 'service to art'.

"I have always been convinced that the inflated, florid phrases with which it is customary to discuss Raphael's Madonna or the 'enigmatic' smile of the Mona Lisa offend the artist.

"In childhood I accepted art simply and clearly, as an organic part of life.

"This sensation is most important to me and most essential to my profession."

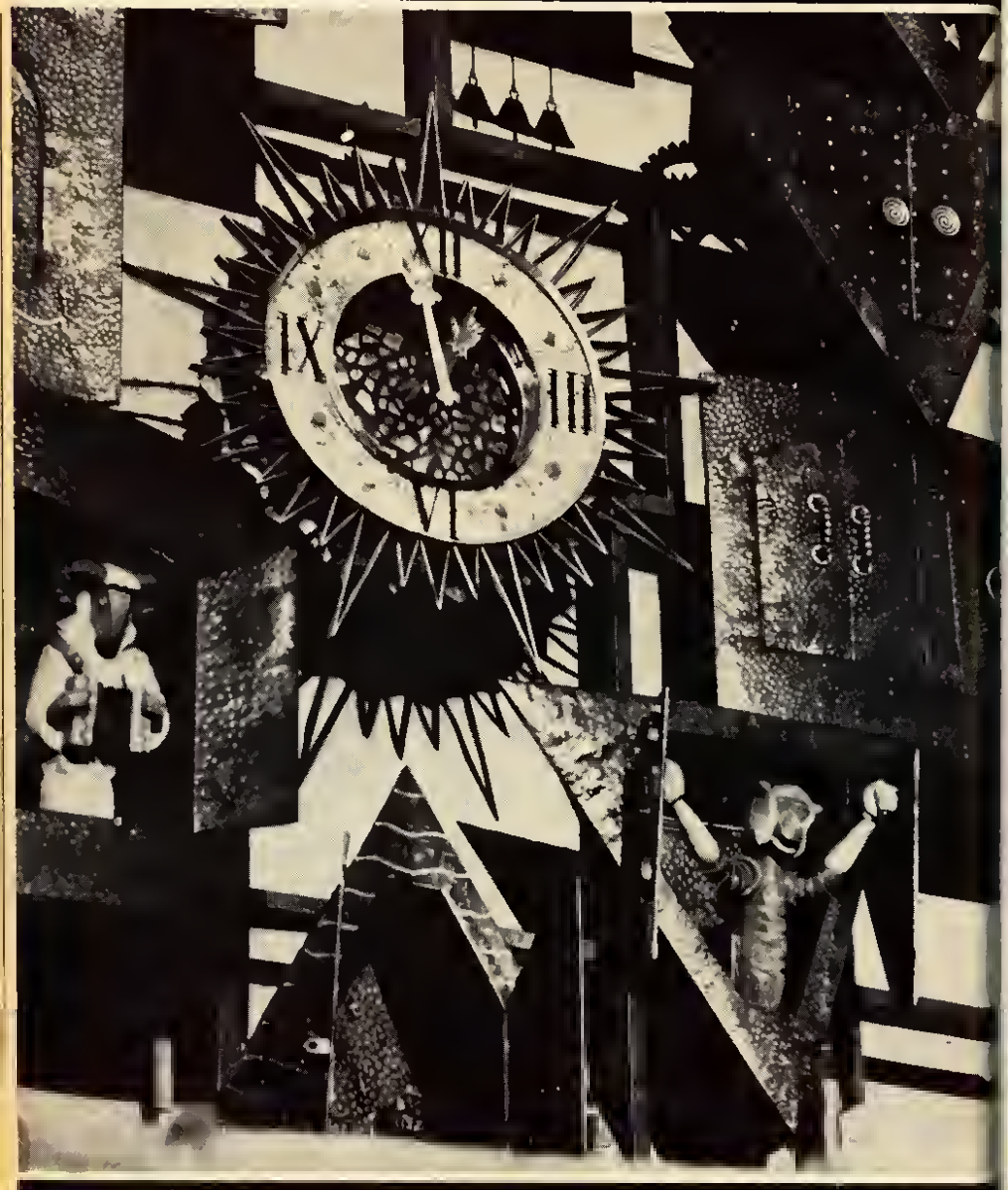
From behind the plain screen appear Obraztsov's famous puppets: his monkeys and his little dogs, which present their own interpretations of well-known romances, the impetuous Carmen and the bald José, the bored tiger who with distaste gobbles up his tiresome tamer, the Gipsy singer, with her huge hands and ring-covered fingers — Obraztsov's own hands — his naughty Tyapa, with round eyes and a funny tuft of hair on the pink bald top of his head, who stubbornly refuses to go to bed. All nice, funny, and touching veterans of Obraztsov's concert performances over many years.

These puppets are his allies in the struggle against our dull, narrow-minded "oldness", in his struggle to restore to us the capacity to believe like children in the wonderful game called art and to see like children all the miracles and beauties called nature.

And Obraztsov achieves his aim: after all, you laugh at and enjoy the wriggling of the clinging arms of his Carmen, the way his songstress rolls the whites of her eyes, the dangling of the tamer's legs from the jaws of his tiger, the way restless Tyapa sucks his finger.

When the performance is over, you think of many serious things: the development of moral and aesthetic senses and the fact that the two are inseparable, the nature and essence of art and the fact that Obraztsov has achieved his aim — he has lured you, at least for a couple of hours, to the largely forgotten land of your childhood.

You feel grateful to this odd man, with his puppets and fishes and doves and dogs, with his stories and songs, a man who has not forgotten his childhood.



The hour is announced to music by the clock over the entrance.

PUPPET THEATRE OF THE TWENTIETH CENTURY

On December 14, 1970, Sergei Obraztsov received spectators in the company's new theatre. Moscow theatre circles were well represented — everyone wanted to congratulate Obraztsov on his housewarming.

from the newspaper SOVIETSKAYA KULTURA

The premiere of "The Housewarming" in progress.

We invite you to take an excursion through Sergei Obraztsov's new puppet theatre.

We start with the last floor — the third. The shiny new equipment of the broadcasting stndio; Sergei Obraztsov's office; workshops; a huge hall — big enough to stage a whole show, where the scenery is assemhled.

The floor helow is the realm of the sound engineers and electricians. The entire space here is given up to serving the stage.

On the first floor there are two auditoriums. One is for shows for schoolchildren and adults, and holds 520. This is very interesting both from the architectural and the technical points of view. One sees an oval room panelled in oak. Only hy the position of the seats can one guess where the stage is. When necessary the oak panels slide downwards in an instant, revealing the stage. Walls are in 16 sections and any combination of them can he moved. If necessary for the action of the play the sections can he united and the show can take place in a circle around the audience.

There is another novelty — "shifting sound". In the floor and the walls of the auditorium loudspeakers are installed — this makes it possible, for instance, for the "devil" to speak from the netherworld, and "God" to make his prononncements from the heavens, which gives the play DIVINE COMEDY, for one, an unexpectedly amusing effect.

Elegant interiors,
A winter garden,
Wonderful shows —
All that there should be for those getting their first taste of the theatre.

"Aesthetic educatiou," Obraztsov says, "hegins in the woods and fields, in all places where a child is surrounded hy heauty. And we should like children who come to the theatre to immediately see fish, and hirds, and fiowers, and heanty and perfection in everything."

Looking at the puppets assembled in the theatre's museum from all over the world is another fascinating pastime.

In the auditorium for the younger children there are 220 seats altogether. This is not so lavishly set up but is superb in the technical respect. Sergei Obraztsov considers 220 seats to be the limit, enabling actors to hold the attention of the audience and preventing restless viewers from disturbing the others.

Both auditoriums are equipped with television transmission apparatus. This means that the performance can be followed from the rooms of the actors, the director, the management and — this is very important — from the vestibule where parents wait for their children.

The rear wall of the theatre is entirely of glass. From here there is a view of a little park. In the foyer next to the buffet, there is a winter garden with tanks containing interesting fish and small reptiles.

One more miracle — on the façade of the building is a "golden" clock in the form of a fairy-tale Russian town. Each hour an animal appears in one of its little houses to the sound of music, and at twelve o'clock the cock crows and all the animals come out.

The theatre museums is a beautiful affair with an all-black decor. Even the ceiling, even the carpet on the floor. The showcases, in which hundreds of puppets from all over the world are displayed is a riot of colour. When Sergei Obraztsov was asked for his opinion of his new theatre, he replied: "It's the most sophisticated Punch and Judy booth of the space age."

by Mikhail SAGATELYAN

DALLAS: Who How Why?

Condensed from the magazine AURORA Leningrad

(conclusion)

Translated by Monica WHYTE

The Thorny Path of Jim Garrison

There probably isn't a newspaper reader in the world who doesn't know the name of Jim Garrison, District Attorney of New Orleans. He is better known than all the authors of all the books on the killing in Dallas put together. Why is that? In the first place, because he, like they, wished to raise the curtain on the mystery surrounding the death of John Kennedy. Secondly, and more importantly, the New Orleans District Attorney is the first and so far the only person in a position of authority in the United States who has attempted to carry out a new investigation of the crime. Various writers have only demanded such an investigation. Jim Garrison pursued it.

Who is this Jim Garrison? An American 20th century Don Quixote, fearlessly challenging official Washington windmills? A smart politician hoping to make capital out of a burning issue? Or perhaps a shrewd, calculating one, acting in the interests of some grouping which wishes to settle accounts with its enemies and the tragedy in Dallas presents an excellent opportunity? And finally, did his investigation and subsequent court case in any way help to uncover the truth? Did it bring us any closer to the sources of the conspiracy?

In October 1966, in other words at a time when demands that the Lyndon Johnson administration re-open the inquiry into the circumstances of John Kennedy's assassination were at a height, Russell B. Long, Democratic Senator from Louisiana, expressed his grave doubts to Garrison about the Warren Commission's conclusions that Lee Harvey Oswald was a lone assassin. The Senator pointed out that before the shooting in Dallas, Oswald had lived in New Orleans for several months and his activities there could bear investigation. Senator Long added that Garrison could count on his support . . .

The District Attorney certainly wasn't acting on bis own. Behind him there was a special committee composed of over 50 prominent New Orleans businessmen led by the millionaire Rolt. This committee raised additional finances over the meagre official budget of the D.A.'s office in order to cover the far-ranging investigation which Garrison launched shortly after his conversation with Senator Long.

Garrison was also supported in his endeavour by Cardinal Cushing of Boston, close friend and father-confessor to the Kennedy family. "I think they should follow it through," the Cardinal said of the New Orleans probe "I never believed that the assassination was the work of one man."

Garrison maintained tbat Robert Kennedy approved of his investigation.

And so, in the fall of 1966, without any publicity, the New Orleans District Attorney's office opened an investigation into the

circumstances of the assassination of President Kennedy.

On February 17, 1967, the *New Orleans States-Item* reported the fact. Several dozen reporters from New York, Washington, Chicago and a number of foreign correspondents immediately converged on New Orleans. By February 19 the press was quoting Garrison: "We have been investigating the role of the city of New Orleans in the assassination of President Kennedy, and we have made some progress — I think substantial progress . . . what's more, there will be arrests."

I won't go into details concerning the people arrested by Garrison, the charges levelled against them and the court findings. All that has been tboroughly publicised. I just want to briefly tell the story of the New Orleans case.

Clay Shaw, a New Orleans businessman, was accused of being party (under the name Clay Bertrand) to preparations to assassinate President Kennedy. The plotters included David Ferrie, a former civil aviation pilot, Lee Harvey Oswald and a number of others who met in Ferrie's apartment in the presence of witness Perry Russo. The charge, as Garrison reiterated more than once, was painstakingly documented.

On March 14, 1967, a preliminary hearing was held in New Orleans to determine whether there was enough evidence against Shaw to bring him to trial. On March 17, after a four-day hearing, the three presiding judges ruled there was sufficient evidence to hold Clay Shaw for trial.

All the sessions of the grand jury were held in camera and it heard Garrison's evidence against Clay Shaw and his accomplices (most of whom were dead — Oswald, Ruby and Ferrie). The American press believed that Garrison would lose his case since members of the grand jury were in possession of the Warren Commission Report which stated that both Oswald and Ruby were operating on their own initiative. As far as the press knew, the District Attorney had only one witness — Perry Russo.

And then, on the 22nd of March, after examining the evidence against the accused, the grand jury constituted that *there was a conspiracy directed against President Kennedy*, that Clay Shaw was a participant, that the evidence was overwhelming on this score, and that the trial must proceed. This decision of the grand jury created a sensation: *an American court had in fact repudiated the Report of the Warren Commission both as a document and as an official verdict.* The sceptics had miscalculated. Jim Garrison was triumphant . . .

After innumerable delays and postponements insisted upon mainly by the defence, the trial took place at last in February 1969. Clay Shaw was acquitted. Obviously, unlike during the closed grand jury hearings, the prosecution witnesses did not

sound very convincing. The District Attorney himself seemed to have lost interest in his case and turned up at only two or three sessions.

What had happened? Why was Garrison's case lost? Why, after putting so much effort and energy into investigating the "crime of the century" did the D.A. cool off? And finally, does the fact that the case was lost prove that there was no conspiracy and that the Warren Report was correct? Not at all.

All the investigations and preparations for the trial serve as vivid, if indirect proof, that the charges were based on truth. The justice of this conclusion will be seen if one examines the obstacles that were placed in the way of the District Attorney. The very fact that Garrison had such a difficult time of it is in itself convincing proof that he was on the right track and had arrived at the truth.

As already mentioned, on February 17, 1967, the world learned that an investigation into the Kennedy assassination was underway in New Orleans. The next day the White House made public a document drawn up by a special commission which called on the nation to fight the crime syndicate, Cosa Nostra. The document contained quite a number of breath-taking sensations and exposures. Is it possible that the publication of the document on the day following the news from New Orleans was pure coincidence? Of course. But the practice of killing one undesirable sensation with the help of another or other sensations is so widespread in America that the coincidence puts one on guard, to say the least. Whatever the case, it proved impossible to deflect attention away from New Orleans. After Garrison's investigation became known, events moved swiftly and evoked mounting interest throughout the world.

On February 19 Jim Garrison told reporters that the Warren Commission was wrong and that he would prove it.

Washington made no comment. Not a single highly placed official had a word to say in the two weeks following the New Orleans announcement. However, in the very first days after the press reports appeared, someone's mysterious hand made itself felt. On the evening of February 18, 1967, in one of New Orleans' numerous bars, the District Attorney met a former employee of Batista's secret police, the counter-revolutionary exile, Seraphino Eladio del Valle. Garrison showed del Valle a picture of Oswald together with "an unidentified man". That is how the photograph was called in the Warren Report where it is listed under No. 237. Del Valle recognized the "unidentified man" right away — it was one of the leaders of the Cuban counter-revolutionaries in the United States, one Manuel Garcia Gonzales. Del Valle agreed to arrange a meeting between Garrison and Gonzales. On the evening of February 20 both Cubans disappeared. Three days later the mutilated body of del Valle was found in an abandoned car in Miami. Gonzales simply disappeared from Louisiana.

On February 22 David Ferrie was found dead in his apartment. Traces of cyanide were discovered on fragments of a broken tumbler. The police hesitantly presumed suicide. In any case, with the death of Ferrie, Jim Garrison lost a vital witness for the prosecution, a connecting link between Clay Shaw and Lee Harvey Oswald.

The day after the body of Ferrie was discovered, Jim Garrison stated that Ferrie had been the key to many mysteries surrounding the killing in Dallas and then incautiously added that he feared for the safety of others involved before the investigation was completed. On February 24, Jack Martin, a New Orleans private detective who had gathered significant information concerning the assassination for the District Attorney, left the city for an unknown destination, leaving word with a friend that he did so for reasons of "personal safety". At the end of February another leader of the Cuban counter-revolutionaries disappeared whom Garrison believed to be directly connected with the conspiracy.

Only then did Washington break its silence. The new Attorney General, Ramsey Clark, and President Johnson himself made statements.

In a brief interview given to the press, Clark stated that he was aware of Garrison's investigation and did not consider it had any foundation. According to evidence possessed by the FBI there was no connection between Clay Shaw and the assassination in Dallas, he said. In reply to persistent questioning on the matter by reporters, Clark again confirmed that Shaw had been checked out in this connection and cleared of suspicion.

The same day at a White House press conference, a reporter asked President Johnson about his attitude to the New Orleans investigation in view of the fact that it set out to demolish the Warren Report and considering that Johnson had recently stated he saw no reason to doubt the conclusions reached by the Commission.

Johnson replied he saw no reason now to repudiate any of his earlier statements.

Thus both the Attorney General and more cautiously, the President, had spoken up for Clay Shaw. Only three months later, on June 3, the Department of Justice was forced to admit that Mr. Ramsey Clark had lied on March 2: the FBI had never questioned or investigated Clay Shaw in connection with the assassination of John Kennedy. Washington's battle with Jim Garrison had taken a scandalous turn: in an effort to preserve some credibility on the part of the public in the Warren Report, the

Attorney General had resorted to an outright lie.

On March 2 another attempt was made to thwart Garrison's inquiries. The New York radio reporter of the Hearst *World International Service* announced that Garrison intended to prove that the assassination of President Kennedy was carried out on Fidel Castro's orders and that the real reason for Oswald's trip to Mexico was not to obtain a Cuban visa, but in order to receive instructions from the Cuban embassy. The American press picked up the statement and began to comment on it.

At the back of the whole provocative manoeuvre, lay the desire to undermine faith in the "Clay Shaw case". Well aware that by 1967 almost no one in America or abroad accepted the "Communist conspiracy" version, the enemies of the New Orleans District Attorney counted on the fact that if people thought that that red herring was the purpose of Garrison's investigation, they would lose interest.

However, it didn't work. Jim Garrison denied the Hearst allegations as to the trend of his investigations and flatly announced that no foreign state was involved in the assassination of John Kennedy. When the whole truth became known, he went on, a lot of people, including the President of the United States, were going to lose sleep.

On top of everything, Garrison was seeking another witness who could shed light on the conspiracy. His name was Gordon Novel and he was the owner of one of the biggest bars in New Orleans. However, having been warned, he sold his business and disappeared on the eve of his impending arrest. After a considerable search, Garrison's men located Novel in Columbus, Ohio. In response to a request from New Orleans, the local authorities at first detained Novel. Then the real fun started.

In reply to the official request for Novel's extradition made by the State of Louisiana in order to have him appear before the grand jury in the trial of Clay Shaw, the Governor of Ohio stated that Novel would be handed over only if the New Orleans D.A. office gave a written affidavit that Novel would not be questioned about "events connected with the assassination of President Kennedy"!

Gordon Novel was a key witness in the Clay Shaw case because he was a CIA agent. This is not surmise or logical guesswork on the part of Garrison and his investigators. Here is the proof. On May 23, 1967, Novel's lawyer, Stephen Plotkin, was forced to admit that "his client served as an intermediary between the CIA and anti-Castro Cubans in New Orleans and Miami prior to the April 1961 Bay of Pigs invasion".

The same day the Associated Press reported that "when Novel first fled from New Orleans, he headed straight for McLean, Virginia, which is the central Intelligence Agency suburb. This is not surprising, because Gordon Novel was a CIA employee in the early sixties".

This did not represent the whole truth. In Novel's abandoned flat in New Orleans, a valuable document was found that testified to the fact that Novel had not only been a CIA agent in the past, but remained one up to the time he fled the city. The paper, written in Novel's hand (which handwriting experts testified to), was a draft of a report made by Novel to his CIA superior, "Mr. Weiss". It is an interesting fact that Novel's attorney also admitted later that: "Everything in the letter as far as Novel is concerned is actually the truth."

Here are the highlights of the draft report: "I took the liberty of writing you direct and apprising you of current situation expecting you to forward this through appropriate channels. Our connection and activity of that period involved individuals presently about to be indicted as conspirators in Mr. Garrison's investigation."

Novel goes on to warn that Garrison's probe was threatening to expose his ties with the Double-Check Corporation in Miami and therefore it was essential to take necessary counter-measures through military intelligence since Novel himself, his associates and lawyers, had run out of legal loopholes to forestall the District Attorney.

Knowing enough about the ways and means resorted to by the CIA in the case of blown agents whose existence threatens to throw light on the super-secret operations of the "Langley Monster", Novel warned Mr. Weiss that his death would not be in the interests of his employers. "Our attorneys and others are in possession of complete sealed files containing all information concerning this matter." In case of his disappearance, accidental or otherwise, the files would be made public in different areas of the country simultaneously.

Apparently Novel's threat was duly noted. His life was spared and he himself was spared the necessity of giving evidence to Garrison.

Needless to say, Novel's report was couched in such a way that it does not reveal directly what actions are under discussion, but it does show that they are relevant to Garrison's investigation. The whole world knows that the District Attorney was investigating *a conspiracy to kill President Kennedy*. So after Novel's draft report, is it possible to doubt that the CIA was involved in some way in the events in Dallas? Also, Novel's reference to the Double-Check Corporation is additional evidence of CIA involvement. Back in 1965, in a book written by two Washington reporters, Thomas Ross and David Wise, entitled *The Invisible Government*, the Double-Check Corporation was unmasked as a CIA front

engaged in preparations for the invasion of Cuba in April 1961. And now Double-Check had turned up in Dallas!

To anyone who followed the press, it became obvious that notwithstanding the law, Washington was interfering with the District Attorney of New Orleans and the President was maintaining a discreet silence with regard to the curious doings surrounding the case.

It is my deepest conviction that the facts concerning overt and covert obstacles placed in the way of Garrison provided the lacking weight on the scales of public opinion in the United States and abroad and sent the Warren Commission Report plunging to oblivion and conversely strengthened the feeling that Lyndon Johnson was behaving in a manner that suggested he was in some way mixed up in the Dallas crime.

That is why the actions (or inaction) of the Federal authorities, when they became known to the public, did not discredit the New Orleans District Attorney, but on the contrary, gave added substance to bis inquiries.

The trial in New Orleans continued, as did the attempts of the Federal authorities to end it. A considerable section of the press accused Garrison, as he put it, of "every kind of unethical practice except child molesting" and he added with black humour, "I expect that allegation to come shortly . . ." Garrison received many death threats by letter and telephone. He kept a gun beside him at all times and hung on. "On my tombstone," he joked, "may be inscribed: 'Curiosity killed the D.A.' " At one point he confessed that he was glad he had not known of the troubles in store for him when he launched his investigation. If he had, he might have had second thoughts but as it was, he had no regrets.

So, after clearly demonstrating that Garrison's investigation was impeded, to put it mildly, let us now turn to the question of what new facts he was able to uncover. He told about them himself as soon as he realised that his best defence against both physical reprisals and newspaper slanders lay in making whatever information he possessed, public.

Tbe following is the gist of two or three lengtby interviews given by Garrison with the absolute understanding that he had corroborative proof in the form of documents, photographs or statements by witnesses for each fact presented.

Who was Lee Harvey Oswald and what was his role in the assassination?

Oswald was a CIA agent. He was recruited while still a US marine. He was sent to the Soviet Union by the CIA with two main tasks: to spy and to disinform. Oswald arrived in Moscow with data concerning the American radar network around and in Japan. He underwent special training on a US military base at Atsugi preparatory to his trip to the Soviet

Union. He studied Russian and "communist theory" and was allowed to subscribe to *Pravda*. This is why, having failed in his mission due to the vigilance of Soviet counter-intelligence. Oswald was not prosecuted on his return to the USA for giving secret information to the Soviet Union. By request of the CIA, the American embassy in Moscow paid the plane fares to America for Oswald and his wife. Despite existing American laws, the CIA also arranged to have an entry visa issued to Oswald's Russian wife.

After returning to the United States, Oswald received a new assignment: to take part in the training of a special CIA terrorist group consisting of Cuban counter-revolutionary exiles. The terrorists were supposed to land in Cuba and assassinate Fidel Castro.

The organising of the group took place in the geograpbical triangle Miami — New Orleans — Dallas. They were trained in a special school on the shores of Lake Pontchartrain near New Orleans. Jack Ruby, David Ferrie and Gordon Novel were all there. Ruby was also a CIA agent, Ferrie and Novel were operatives.

Oswald's assignment was to pretend to be a "communist". With this in mind, he organised a fictitious branch of the Fair Play for Cuba Committee and distributed leaflets in its name and even spoke on the radio. However, Oswald made one serious error whicb almost cost him the game. He gave as the address of the New Orleans branch of the Committee the address of a private detective agency which was widely known in the city as the headquarters of ultra-rigbt organisations and which served as a cover address for Cuban counter-revolutionary groups. Later this mistake of Oswald's cost the lives of both owners of the detective agency — they died in mysterious circumstances in 1964, just as so many others did who knew too much about the killing in Dallas.

In the summer of 1963 the CIA received strict instructions from the Administration to stop its preparations for an attempt on the life of Fidel Castro. However, the CIA did not carry out the orders, merely switched objectives. All the above-named participants in the preparations for terrorism in Cuba, both Americans and Cubans, were fascist-minded reactionaries who hated Kennedy. Oswald, who was a right-winger, as his connections in Dallas and New Orleans testify, also hated him. Garrison was able to pin-point these connections of Oswald's. Clay Shaw, under the name Clay Bertrand, took on the leadership of the conspirators who decided, "for the good of America" that Kennedy had to be liquidated.

From the very beginning, Oswald was assigned the role of sacrificial goat, though he himself did not suspect it. He was chosen because of his past contacts with communism — his "defection" to the USSR, his "work" with the Fair Play for Cuba Committee,

his trip to Mexico to make contact with the Cuban and USSR embassies. At first the plan was to organise a trip to Cuba for Oswald just before the assassination in order to make the "communist conspiracy" more convincing. However, due to the vigilance of Soviet and Cuban security organs, Oswald was not allowed entry to Cuba.

Oswald participated in the conspiracy against Kennedy, but he did not shoot at him.

Garrison was not able to establish what Oswald's role in the conspiracy was, but he was able to show that others, not Oswald, fired the shots.

How the President was killed. Seven people took an active part in the assassination. They were Cuban counter-revolutionaries and Americans from the ranks of semi-legal, armed "ultra" groups. They fired from three points, including the window of the schoolbook depository where Oswald worked. Three snipers fired. Beside them were three assistants whose job it was to pick up the spent cartridges which, along with the guns, were hidden in a van which was driven away hours later from a side street leading off the Dealey Plaza. As is known, once the Dallas police caught Oswald, they stopped looking for anyone or anything else. The seventh member of the ambush, dressed in green combat fatigues, had the job of creating a diversion. A few seconds before the motorcade arrived at the ambush point, he shrieked wildly and fell to the ground, simulating an attack of epilepsy, thus attracting attention to himself and away from the snipers who were in position. The coordination between the seven was precise because they kept in contact by radio.

Two of the seven were picked up by police following the assassination but were released almost immediately, after which they disappeared from view. Their whereabouts are unknown, though Garrison has their names.

Why was John Kennedy killed and who organised the plot?

The seven killers were controlled by Clay Shaw through David Ferrie and others. He did so with the knowledge and blessing of the CIA and was financed by a number of incredibly rich oil magnates who stayed in the background and were well screened. President Kennedy, Garrison maintained, was killed for only one reason: he wanted to alter the course of America's foreign policy and to normalise relations with the Soviet Union and Cuba. The conspirators, including the CIA, intended to resort to the most extreme measures in order to thwart such a possibility. In Garrison's opinion, Lyndon Johnson was aware of the background to the assassination, of the true identity of the killers, but played no active role in the conspiracy.

Such is Jim Garrison's story. Why then, if he had the necessary proof, did the District Attorney lose his case against Clay Shaw, who was found not guilty? The answer to this reasonable question is not as complex as one might think.

In the first place, with the assassination of Robert Kennedy, the support which he lent to the investigation, ended. That such support was extended, there is no doubt. It is known for instance, that a few weeks before his death Robert Kennedy sent Garrison a letter in which he expressed his conviction that there had been a plot and that Garrison was on the right track. In the same letter Robert Kennedy promised that if he were elected President, the conspiracy would be exposed and the real plotters would be punished.

It was much harder for Garrison to proceed without the support of the Kennedy clan. Shortly after the death of his second brother, Edward Kennedy publicly dissociated himself from the Garrison inquiry. Who could blame him? What was the point of making a target of yourself prematurely?

Secondly, and this is the main point, at the beginning of the Clay Shaw trial in 1969, a considerable part of Garrison's file on the case, including concrete evidence, was stolen. Jim Garrison described the situation in the following somewhat guarded terms, to Henry Borovik, Soviet APN correspondent in the United States:

I understand now, looking back, how naive I was two years ago. I had no idea how powerful the CIA was in this country.

We were short-handed. That is why, when people came in and offered their services, we carried out only the most superficial inquiries and if they appered honest, we availed ourselves of their help. Imagine for yourself — a man comes in and says he's a journalist and even shows us his published, signed articles in various magazines and says: you don't have to tell me anything, you don't have to show me anything, I simply want to help. Well, why not?

We didn't notice right away that these people had connections with each other. To be honest, I was the last one to realise it, because I'm used to trusting people. Afterwards we discovered that the information they provided led off on a tangent. They confused the investigation. They provided false clues and false witnesses.

Besides me, there are only three investigators working in my office. We couldn't tear ourselves into bits. We were given a written statement from a man who was supposed to be living at a certain address, who had a telephone, his name was in the directory, he even had a paid telephone bill in his name. Then it turned out the address and the bill and everything was phony. I somehow never thought then that it was nothing for the CIA to provide their agent with a false telephone bill.

All kinds of people got into the office. One of them must have been a pretty high-ranking agent. Probably he was in charge of the whole operation directed against our investigation. We exposed him a few hours after he began to destroy our files and almost succeeded. The rest of them melted away with him, so they must have been connected. Of course, it's flattering that one of the most powerful agencies in the world — the CIA — was so scared of me, but it's small comfort. Over two years they managed to make off with almost all our files. (Retranslated from the Russian — Tr.)

Now it is clear why Garrison was not simply removed, like scores of others who knew too much about the murder in Dallas. It was much more effective to deprive him of the evidence and destroy his case. That is why the District Attorney hardly bothered to appear in court and the reporters were quite right in concluding that he had lost interest in the Clay Shaw trial.

Now all that remains is to discuss one more outcome of the Garrison investigation, one that is preferabty forgotten in America. So, to repeat the question posed at the beginning of this chapter: is the New Orleans District Attorney the Don Quixote of the 20th century?

It would seem so. Jim Garrison's Don Quixotism consisted in the fact that he sincerely believed in the existence of a democracy in his country which would permit him, according to the letter of the law, to do what he considered essential. That was his biggest mistake. He had the support of powerful forces, he had the support of the general public. But all this was not enough because his opponents held the reins of political power and by their actions they clearly demonstrated that for them — the masters of America — no laws existed, none of the "democratic traditions and principles" of which American propagandists like to boast so much.

It seems that Garrison himself realised this. In any case, this is what he himself wrote:

"What worries me deeply, and I have seen it exemplified in this case, is that we in America are in great danger of slowly evolving into a proto-fascist state. It will be a different kind of fascist state from the one the Germans evolved: theirs grew out of depression and promised bread and work, while ours, curiously enough, seems to be emerging from prosperity. But in the final analysis, it's based on power and on the inability to put human goals and human conscience above the dictates of the state. Its origins can be traced in the tremendous war machine we've built since 1945, the 'military-industrial complex' that Eisenhower vainly warned us about, which now dominates every aspect of our life. The power of the States and Congress has gradually been abandoned to the executive department, because of war conditions: and we've seen the creation of an arrogant, swollen bureaucratic complex totally unfettered by the check and balances of the constitution.

"In a very real and terrifying sense, our government is the CIA and the Pentagon, with Congress reduced to a debating society. Of course, you can't spot this trend to fascism by casually looking around. You can't look for such familiar signs as the swastika, because they won't be there. We won't build Dachaus and Auschwitzes: the clever manipulation of the mass media is creating a concentration camp of the mind that promises to be far more effective in keeping the populace in line.

"We're not going to wake up one morning and suddenly find ourselves in gray uniforms goose-stepping off to work. But this isn't the test. The test is: what happens to the individual who *dissents?* In nazi Germany, he was physically destroyed: here the process is more subtle, but the end results can be the same. I've learned enough about the machinations of the CIA in the past year to know that this is no longer the dreamworld America I once believed in."

So this, it seems, is what life taught Jim Garrison in the course of the road he trod.

Who? How? Why?

On March 31, 1968, Lyndon Johnson made his famous TV appearance announcing that he would not seek re-election and would not accept the Presidential nomination at the forthcoming Democratic Party Convention. The *US News & World Report* was one of those that risked naming one of the most important reasons for Johnson's decision. It was a case of the President being squeezed out of the White House by his own party, the magazine stated, and quoted a close friend of the President as saying that you can't remain in office when people call you an assassin and when rioting crowds take to the streets.

Yes, in the spring of 1968, thousands of Americans openly referred to their President in similar terms. Things came to such a pass that even among the political elite of Washington, among Senators and congressmen stories like the following circulated:

"What was Lyndon Johnson doing 45 seconds before the shots in Dallas were fired?"

The question was followed by the speaker plugging both his ears with his fingers.

As a matter of fact, this joke was related even to foreigners, Soviet people included. This was not just another nasty joke invented by Johnson's political opponents, as we shall see. There are some facts behind the story.

It goes without saying that it is an exceedingly serious matter when society accuses the leader of

its country of being involved in murder, and an incumbent leader at that. The suspicion could not settle merely as a result of intrigues, without at least some foundation. In 1966, two out of 100 questioned in a poll conducted by the Louis Harris Institute of Public Opinion, stated that Lyndon Johnson was behind the assassination in Dallas. Judging by thinly veiled accusations in the press and several other factors, in the spring of 1968 this percentage had increased significantly. I say "judging by" because a similar poll was not conducted in 1968 or if it was, the results were not made public.

Nevertheless, it seems to me that objectivity and justice demand from all who attempt to explore the origin of the assassination, to ask a very precise question: Did the former Vice-President know in advance what was supposed to happen on November 22, 1963? Or did the conspirators, aware that Johnson had plenty of personal reasons to wish Kennedy out of the way, decide not to burden the conscience of the future President with such information? The answers to these questions arc extremely important. Is anything known about this side of the story?

Some things are known.

On November 24, 1963, several White House reporters learned the following: as the Presidential motorcade moved through the streets of Dallas, Johnson told his Secret Service guard who was sitting in the front seat, to switch on the car radio. The Vice-President listened attentively to the local radio station, paying no attention to the throngs of welcomers. The incident was remembered, but at the time, along with others, was not thought important.

But two years later, witnesses who were present in the car with Johnson (Senator Yarborough and Secret Service guard) began to talk. Johnson ordered the car radio turned on a few blocks before the murder site. All the way along the route he looked not only glum, but extremely tense. The Vice-President listened to the radio which he requested be turned up full volume and whicb drowned out the roar on the street. Nevertheless, Johnson immediately recognized the first shot for wbat it was. The same second, Secret Service guard Rufus Youngblood yelled: "Get down!", hurled himself over the seat and covered Johnson with his body. Youngblood, according to his own words was not absolutely sure that he had heard a gunshot. He had time for the thought that if he were wrong it would be rather embarrasing.

William Manchester emphasises Johnson's absolute conviction as to the nature of the explosion be had heard and the Secret Service guard's uncertainty, a man whose profession should make him quite familiar with the sound of gunfire.

Such are the known facts. What do they signify? Well, as they say

in America, "Your guess is as good as mine."

When John Kennedy was already President, a limerick went the rounds which in an amusing and risqué fashion suggested that Johnson was in the pay of the "fat cats" of Texas — the oil billionaires of Texas, such as Harold Hunt, one of the richest men in the world.

The name of Harold Hunt was barely mentioned in the American press in the first few months following the assassination. Nevertheless, this man obviously played an important role in the conspiracy. Here are the facts.

July, 1960. The Democratic Party Convention in Los Angeles. Harold Hunt establisbed himself in a hotel not far from Johnson's headquarters. He kept his favourite posted daily with memoranda and advice as to how to ensure the Presidential nomination. Then, when this proved impossible, Hunt complained to friends: "If Lyndon had just strictly followed my advice, Kennedy would never have made it. And it so happens I'm the man who told Johnson to agree to second place on the ticket once it became clear Kennedy had won."

Autumn, 1961. The American journalist, Al Burke, is a guest at the Hunt estate. In his presence the oil king hurls abuse at Kennedy for his policies, whicb in Hunt's opinion are directed above all, at destroying his, Hunt's oil empire. Already tben the magnate suggests the physical removal of Kennedy from the scene. "There is no other way to get rid of the traitors who have taken over our government," Burke writes down Hunt's words in his notebook. "They should all be shot."

November 14, 1963. In a back room of Jack Ruby's nightclub, a number of people gather — including the owner, the Dallas policeman Jack Tippit (the same one who according to the Warren Commission was shot by Oswald), and another person whose name was not mentioned in the Report. The American press later reported that Earl Warren, Chief Justice of the US Supreme Court and Chairman of the Commission, in questioning Ruby called the unidentified person a "wealthy oil man". Interestingly enough, Warren has not denied the allegation.

November 22, 1963. The *Dallas Morning News* comes out with the widely-known advertisement, bordered in black like an announcement of mourning and sarcastically headed: "Welcome Mr. Kennedy to Dallas." Ted Dealey, Birchite publisher of the *News* was one of H. L. Hunt's closest friends. Later the Warren Commission established that the advertisement had been paid for by three Texas businessmen, one of whom was Nelson Bunker Hunt, son of Harold Hunt.

On the morning of the same day Jack Ruby showed up in Ted Dealey's office and they talked privately. Several days before the assassination Ruby was seen in

the office of another son of H. L. Hunt — Lamar. Here too, Ruby spent a long time in private conversation.

In all the above incidents, only once — in reference to the meeting in the back room of Ruby's nightclub — does the name "Hunt" not openly figure. However, the authorities demonstrated quite clearly that they knew exactly who the "wealthy oil man" was. A few hours after the killing, on the evening of November 22, FBI agents arrived at the Hunt estate. They did not come to arrest him — such things simply don't happen to billionaires in America. They had come to warn him: it was not safe for him to remain in Dallas since many people associated his name with the murder. That same night the oil magnate was secretly transported to Baltimore where he quietly remained for several weeks until passions died down. And all this time he was guarded by local police and FBI agents!

Today the most well-founded and documented version of the assassination of John Kennedy is that of Jim Garrison. This is so if only because the investigation of New Orleans' Don Quixote evoked such rabid and scandalously illegal counteraction on the part of Lyndon Johnson's Administration. The facts were there for America and the world to see and can hardly be discounted.

And so, the "fat cat", the ex-politician from Texas and the CIA, all of them, to a greater or lesser degree, have been exposed, both through their own actions and through eyewitness accounts. And all of them, as is not hard to spot, can easily be brought down to one common political denominator — oil.

It is possible that history will add further names to the sinister list of conspirators.

John Kennedy lost his political game, the stake in which turned out to be his own life.

Why did he lose? Why were such extreme measures resorted to?

On January 20, 1961, when the new President took his oath of office in Washington, which is situated on the same latitude as Ankara, the temperature was 20 degrees below zero and that night a vicious blizzard swept over the city. In the National press club, beside a blazing log fire, Republican supporters among the reporters gloomily traded wise cracks: "Even nature is protesting against the White House being taken over by that nice, smooth young man with dangerous ideas."

That day, in his first official Presidential speech, the young man had spoken somewhat unusually, if his speech were to be compared to those made by his postwar predecessors, beginning with Harry Truman.

The most interesting and unusual thought in that speech touched on internal matters: "If the free society cannot help the many who are poor, it can never save the few who are rich." Further, obviously addressing himself to those "who are rich", Kennedy appealed: "And so, my fellow Americans, ask not what your country can do for you, ask what you can do for your country."

These two sentences contain all of John Kennedy's philosophy, his mission in life, the reason for which he fought to become President of the United States. This mission could be defined even more briefly, in three words: to save capitalism.

Walter Lippmann, the well-known American columnist, gave an interview in May 1964 to a West German weekly *Der Spiegel*. He was a thousand times right when he pointed out that many Europeans not only idealised Kennedy, but had formed an erroneous conception of the man. He had been before his death the darling of the left, but he himself was not liberal, he was a conservative.

The West German interviewer hastened to agree with Lippmann and added that this was particularly so as regarded internal policy.

Yes, above all in internal policy questions. In foreign policy this tendency was revealed much later — in the third and final year of his Presidency. And it showed itself of necessity in connection with internal problems and the main goal — to save the US system.

In order to explain this, one must understand the changes which have taken place in the structure of American society and which first became evident sometime in the early 1950s. At that time very few defenders of imperialism (Kennedy was one of them) saw the potential threat posed by those changes. I am referring to the population explosion in the United States. In 1940 there were 132,600,000 Americans. By 1960 the figure had risen to 180,700,000. In 1970 the population was over 200,000,000.

However, only two age categories have climbed sharply: those under 18 and those over 50. The number of able-bodied Americans, in other words, producers of material wealth, has of course also grown, but in comparison with non-wage-earners, very little. This is creating serious social problems: the aged and the young have to be fed, schooled and given medical attention. But American capitalism does not wish to expend a greater share of its profits for this purpose. Even the present share is given up grudgingly, only under pressure of class struggles. And also because a new world system of socialism has appeared and thrived in the world, where schooling and medicine and much else is provided free of charge to the people.

Nevertheless, the masters of America did not wish to increase the allotments for social needs. And then, at first here and there and politically not very notice-

able, crises began to arise — in education (a shortage of schools and teachers), in medical services and among the aged. The working sections of the population could no longer provide, on their wages, support and security to the ever increasing number of non-working members of society.

In its historical blindness, American imperialism chose another path. It began to improve the situation of only one section of the labouring populace: those engaged in working the new post-war "gold vein" — armaments production, particularly in the nuclear-rocket field. In actual fact, as far as Marxists were concerned, American imperialism had not invented anything new. That path of development was predicted by Lenin back in 1916 when he wrote *Imperialism, the Highest Stage of Capitalism:*

"The enormous dimensions of finance capital concentrated in a few hands and creating an extraordinarily dense and widespread network of relationships and connections which subordinates not only the small and medium, but also the very small capitalists and small masters, on the one hand, and the increasingly intense struggle waged against other national state groups of financiers for the division of the world and domination over other countries, on the other hand, cause the propertied classes to go over entirely to the side of imperialism. 'General' enthusiasm over the prospects of imperialism, furious defence of it and painting it in the brightest colours — such are the signs of the times. Imperialist ideology also penetrates the working class. No Chinese Wall separates it from the other classes."

American capitalists have made an art out of the practice of corrupting significant sections of the working people and making them share the capitalist viewpoint.

One of the most complex aspects of the process of social corruption is intended to direct the enormous native energy of the average American away from his class interests and toward personal aggrandisement. Contemporary American society simply cannot be understood if individualism as a moving force is ignored. "Every man for himself and may the best win." Anyone who has seen the film *It's a Mad Mad Mad Mad World* can say he has seen the mainspring of American society in action (naturally putting aside the exaggerations of the comedy element).

In order to allow wider sections of the American working people than in the past to "participate" in the interests of the bourgeoisie, a material base is required. This has been provided in the past decade by the scientific-technological progress of the United States and by the huge profits extracted from the wholesale grabbing and exploitation of the natural resources of other countries. For instance, in the years 1950-64, American companies

transferred 5,975 million dollars in profits to the USA from Venezuela alone. The geography of exploitation and impoverishment of whole nations is not limited to Latin America . . .

In addition to the two "eternal" sources of profit-making, a third was added after the Second World War — the arms race in conditions of cold war. Over the past 20-odd years, a huge military-industrial complex has been created in America. The world press hardly allows a day to go by without some story on the subject. The more far-seeing sections of the American bourgeoisie (out of self-interest) are now trying to limit the allembracing influence and power of this complex. How successfully American imperialism has bent the country to its will can be judged by two statistics: every fifth person in America earns his living from funds allotted to the arms race; over 100,000 American companies are working for the Pentagon.

However, instead of liquidating the danger of social upheavals, such "common cause with the interests of imperialism" has only hastened their onset. After all, wide sections of the working people have remained outside the "cold war prosperity". And slowly but surely this has led and will lead to situations promising social unrest which could rock America to its foundations. The first rumblings of such eruptions have already been heard. Back in 1960 they could only be guessed at.

That is why Kennedy appealed to his class brethren — give a little in order not to lose all. On one occasion the new President called his policy "a strategy of survival".

The President began with a decision to shake up the oil producers. It must be said that the personal business interests of the Kennedy clan and of the whole Boston financial grouping not only would not have suffered as a result, but would have gained. The "Bostonians", as did the rest of America, had to pay a high price for their oil products.

Once in power, John Kennedy wasted no time in worming the oil industry out of the grasp of the Department of the Interior where from generation to generation oil affairs had been handled by trusted and loyal henchmen of the Texas "fat cats". A special Presidential Assistant, Myer Feldman, was put in charge of the oil and gas resources. Under his overall leadership a re-established interdepartmental commission began to work on a new bill which would regulate oil production and taxes levelled on the industry. The prepared draft was published in July 1963. Its essence came down to one thing: if the bill was passed, the profits of the oil companies would be slashed by three-and-a-half billion dollars annually!

This was an open challenge to the oil magnates. Naturally, they counterattacked, and did their best to delay the bill's progress. When in October 1963 the press

reported that in the near future the President intended to place before Congress a bill that would repeal the oil depletion allowance and introduce other new rules into the exploitation of oil resources, the magnates undertook their final open demarche: they requested an audience with the President. On November 8, two weeks before the assassination, the presidents of the three biggest American oil conglomerates met with Kennedy for half an hour. The next day Texas newspapers reported that the oil men were "disappointed" with the outcome.

Exactly two weeks after assuming the Presidency, Lyndon Johnson returned oil affairs to the Department of the Interior. Myer Feldman was out of a job. In the Walter Lippmann interview already mentioned, the columnist also declared that Kennedy had divided the country, whereas Johnson was like a well-worn slipper — very comfortable.

John Kennedy's second attempt to restrain the moneybags in their inordinate greed became known as the "steel crisis". At the beginning of April 1962, the steelworkers trade union — one of the biggest in the country — came to an agreement with the steel companies after long and difficult talks in which the then Secretary of Labour, Arthur Goldberg, participated. It was agreed that steel prices would not be raised. Literally within a few days, the president of the major steel monopoly — US Steel — Roger Blough, placed on Kennedy's desk a four-page memorandum which announced US Steel's decision to raise steel prices $6.00 a ton. While Blough was still inside the White House, reporters were banded copies of the memorandum.

Such a move almost automatically entailed price increases on many goods — both industrial and consumer. Major strikes were in the air and consequently the heating up of the social temperature which the President so feared. Kennedy was enraged by the contemptuous lack of respect for himself and the post he occupied shown by the steel magnates who did not wish to look beyond their own narrow interests. Among his own friends the President said: "My father always told me that all businessmen were sons of bitches, but I never believed it till now." This sentiment got into print and for a long time under various guises the papers kept repeating that "Kennedy was against business". Kennedy did not only talk, he acted. He gave orders to the Pentagon to cancel military contracts made with companies that had raised prices. The steel magnates began to back down. Kennedy's entourage exulted, considering that the President had won the "steel crisis". In fact, he had won only a battle, not the war.

By this actions during the steel dispute, Kennedy had seriously alarmed considerable sections of the business world in the United States. No postwar President had even dared to threaten to take away military contracts from such important companies, much less thought of actually doing so. Incomprehension of the "Boston Pup" and mistrust of his policies visibly intensified.

In the fall of that same year of 1962, America lived through the Caribbean missile crisis. This provided a severe mental shake-up for millions and millions of Americans. For the first time in all my years in the United States, I saw empty shelves in grocery stores — the result of panic-buying.

A group of government leaders, including Kennedy, had peered into the abyss of Hell, as newspapers wrote at the time. After that Kennedy began to understand certain home truths about the nuclear age. He realised, for instance, that in order to save the country from nuclear catastrophe, whether as a result of calculation or of inertia arising from the uncontrolled nuclear-rocket arms race, the two opposing social systems absolutely must enter into talks with the aim of liquidating the danger of frontal confrontations.

The American press was practically unanimous in its view: President Kennedy's attempts to seek ways of easing world tensions and above all of normalising American-Soviet relations, were dictated precisely by the lessons learned in the fall of 1962.

However, a wall arose before Kennedy's intentions. Every single ultra-right organisation in the United States, and what is more important, the military-industrial complex, was vehemently opposed to a detente which inescapably would lead to a deceleration of the arms race and consequently a decrease in profits.

The pressure was unrelenting. It shackled Kennedy's actions, in most cases rendering them impossible or fruitless. Recall the storm of opposition raised in the United States against the limited nuclear test ban treaty.

In this situation John Kennedy took an impermissible step, according to all former American concepts. (Before him, only Franklin Roosevelt bad done the same thing.) The President addressed himself directly to the American people, wishing to ensure their support in putting pressure on the military-industrial complex. That was the essence of John Kennedy's speech at the American University in Washington, D.C. in the summer of 1963. Kennedy called on Americans to re-examine attitudes to the cold war and to the Soviet Union.

He said: "Today, should total war break out again — no matter how — our two countries will be the primary targets. It is an ironic but accurate fact that the two strongest Powers are the two in the most danger of devastation. All we have built, all we have worked for, would be destroyed ... We are both caught up in a vicious and dangerous cycle, with suspicion on one side breeding suspicion

on the other, and new weapons begetting counter-weapons.

"In short, both the United States and its allies, and the Soviet Union and its allies, have a mutually deep interest in a just and genuine peace and in halting the arms race."

It is my deep conviction that that speech was the last drop that filled the cup to overflowing and decided his fate.

John Kennedy wanted to save American capitalism. He intended to manoeuvre a bit, to strengthen the rear, to plaster over the cracks that had appeared in the social fabric, in the hope that after such minor repairs, imperialism, having gathered its forces, would once more be able to renew its onslaught, open and direct, on the world of socialism. However, the 35th President was not allowed to do this. That is Kennedy's personal tragedy.

He was a misunderstood President . . .

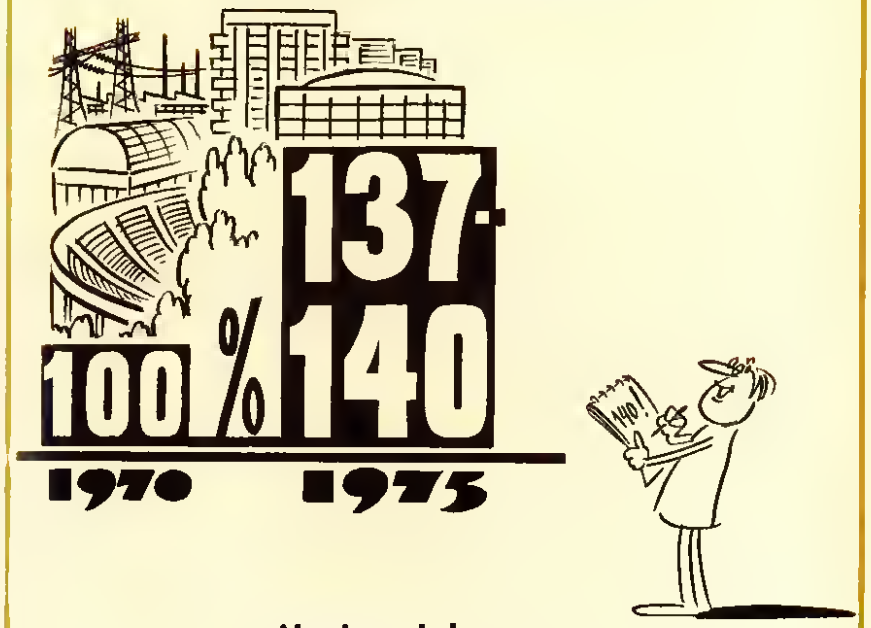
He was a victim of the historical blindness of the most war-like sections of American imperialism. The murder in Dallas reeked so strongly of oil that the stink was smelled by America and the rest world. The sentence on John Kennedy, pronounced by the darkest forces in the country, was executed by the oil magnates through their henchmen.

Even such an outcome satisfied wide circles of American business. They too, had been frightened by Kennedy's activities — all those owners and co-owners of over 100,000 firms fed by the American tax-payers through the intermediary of the Pentagon.

That is the paradox: John Kennedy was removed from the political arena by the very system which he sought not only to strengthen, but to preserve forever.

The 35th President of the United States of America was, perhaps, imperialism's last hope. But his planned operation of rejuvenation on this greatest evil of our time did not take place. It did not take place because the surgeon was cut down in the heart of the festering ulcer — Dallas.

The New Soviet Five-Year Plan



National Income

The total amount of national income over the past five years reaches an enormous sum — 1,166,000 million roubles.

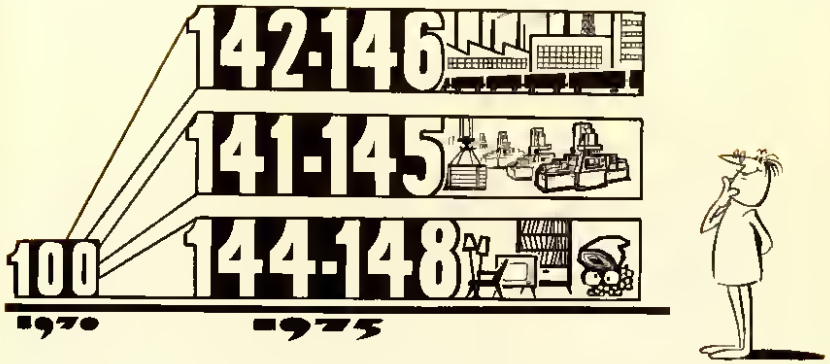
For the sake of comparison: in the five years before the war (1936 to 1940) national income amounted to 154,000 million roubles.

In the current five years national income is, according to the plan, due to rise by 37-40 per cent.

About three-quarters of the national income of the USSR goes on consumption. This includes not only wages but also expenditure on education, health, maintenance of those who are incapacitated, student allowances and benefits — that is, everything which is paid for by the Soviet state.

Diagram: left — national income of the USSR by 1970 (100 per cent); right — its increase by 1975, as envisaged in the Ninth Five-Year Plan.

The New Soviet Five-Year Plan



Changes in Proportions

Under the Ninth Five-Year Plan the development of those branches of industry producing consumer goods is to be speeded up. It has been decided to change somewhat the basic proportions in industry.

From the diagram it can be seen that the development of consumer goods production will increase at a slightly more rapid rate than that of producer goods. This does not, of course, change the general line of the Soviet economy — rapid tempos of development for heavy industry, the basis of the country's economic might and further increases in the people's well-being.

Heavy industry has to extend considerably the production of machinery and equipment in oder to speed up the development of agriculture, the light and food industries, and for a still greater expansion of housing construction.

Diagram: output of all Soviet industry is to grow by 42-46 per cent by 1975;

41-45 per cent — growth of producer goods production;

44-48 per cent — growth of consumer goods production.

THE LAST OF THE SHAMANS

by Vladimir GORODETSKY from the newspaper *TRUD*

An obelisk stands in the town of Kyzyl, capital of the Tuva Autonomous Republic, bearing the inscription "The Centre of Asia". Tuva is further from the ocean than any other part of the Earth.

Tuva is not very big — 66,100 sq. miles — and has around 231,000 inhabitants. On the north it shares a border with the Russian Federation, on the south with Mongolia. It joined the USSR voluntarily in 1944.

Thirty years ago Tuva could claim an odd kind of world record — in number of "priests" per head of population. Not a single layman could read or write. Today all children go to school, there is a medical secondary school, an Institute of the Tuvan Language, History and Literature, a Music and Drama Theatre, and a Museum of Local Studies.

But probably there are still shamans — those Asian witch doctors-cum-magicians — in Tuva. The newspaper TRUD sent a correspondent to investigate.

The shaman was a fearsome sight. He soared like a hawk above the flickering flames of the fire and slunk like a treacherous red fox into the shadow of the *yurta* (felt tent), in his hunt for the evil spirit tormenting the young girl. The spirit slipped through the shaman's hands, stretched in a hopeless burst of fury towards the starless sky where dwelt the mysterious evil host of the Lord of all the dark forces.

Hoarse, guttural ejaculations mingled with the disquieting

thundering of the magic tambourine. As the shaman spun like a top by the fire, the ragged jangling of countless bells and metal rattles frightened the wits out of the simple souls — nomadic cattle-breeders — gathered in the *yurta*.

The shaman seemed to be accompanied by a black whirlwind that was attached to his chest and arms. The whirlwind was his magic wings, which bore him through the world of the evil spirits. The shaman was a great and mighty man; speedy as the wind itself, he caught the enemy, fell upon it and choked the life out of it. The spirit had been vanquished.

The shaman moved towards the patient, flourishing his huge tambourine above her inert form in a gesture of triumph. But the girl did not stir. While he had been engaged in his bocus-pocus she had died.

A shriek of anger and despair broke from the shaman. In impotent fury he flung his sacred tambourine into the flames and covered his face with his hands.

As he revealed his face once more there was tumultuous applause from the entire audience at the Tuva Music and Drama Theatre.

"Our Kok-Ool is a great actor," said my neighbour, Kenin-Lapsan, well-known Tuvan historian and specialist in local studies. "And anyway, he's cut out for the role, you might say — he was intended to be a shaman . . ."

Old Dolchan bad passed on her secrets to her son. She had been a truly great shaman, and the nomads used to travel from far and wide to receive her ministrations.

"Help us, great and strong one," they used to entreat. Dolchan would put on her heavy robes and begin to weave her spells. Sometimes she was at it all night long, and it scared the little boy to watch his mother at sucb times.

Dolchan had ber own special methods. If, for example, a hunter returned empty-handed from the hunt, she would ascribe his failure to the presence of a woman. It meant that a woman had accidentally stepped across the gun. In order to restore the gun's accuracy she would spit into tbe muzzle and tie a piece of rag to the barrel.

Someone was taken ill? Then their relatives should bring a white reindeer with a black patch and kill it. The shaman would cut the black patch from the reindeer's hide and throw it into the fire; the evil spirit would leave the sick person and join it. But when the nomads handed over what was often the only wealth they had in the world they were ignorant of the fact that no incantations could help her to save the lives of her own little children. Fourteen died, only one remaining alive so that he, too, could follow in his mother's footsteps and become a great shaman.

But the robes decorated witb images of human skulls and bones,

Shaman's head-dress. The rope decorations almost conceal the face.

A former shaman at the piano.

the cap with the eagle's feathers and the tambourine, which had all been prepared for him by his mother, remained lying in the *yurta*. Different times bad come to Tuva. The Civil War was going on from 1918 to 1921. The guerillas routed the White Guards, and in August, 1921, the Tannu-Tuva People's Republic was proclaimed which was immediately recognized by Soviet Russia. Kok-Ool became a cavalryman in the people's revolutionary army, and later one of its commanders.

When he returned to his native

settlement, the Komsomol (Young Communist League) gave him an important job to do — to play the part of the shaman-quack doctor in a play. The old people there still recall that the performance given by Dolchan's son was like a thunder-clap in a mountain gorge. The nomads cried out in delight. Everything was true, but Dolchan, her fists clenched so tightly that the nails pierced her palms, silently left the audience.

Eventually she forgave her son. But from that day she worked no more magic spells, considering that her son had mocked the spirits and that now it was more than she dared do to enter their kingdom.

The shaman's son became renowned tbroughout Tuva. He went off to Moscow, and there spent a long time studying. To begin with Victor Kok-Ool graduated at the Communist University of the Working People of the East, and then went on to a theatrical institute, where he heard lectures given by Stanislavsky himself.

Today he is an Honoured Artist of the Russian Federation, and a renowned Tuvan composer and dramatist.

But where could I see a real live shaman?

"You've come too late," they told me at the offices of the local paper. "The last one was Tulush Duger."

They went on to tell me about the end of Tulush's "career".

A year earlier, a little man, bowed by the years, had entered the Museum of Local Studies. He carried a large sack on his back, and it was clearly too heavy for him. He wiped the sweat from his face and with obvious relief dropped the sack on the floor. There was a dull metallic clanking as it thudded down, and the floorboards creaked plaintively. The former shaman was now a watchman at the Tere-Khol collective farm, and he had brought his shaman's gear to present to the museum.

"No one believes in my spirits and my tambourine these days," he announced. "And somehow I don't see demons and devils any more. The old folk turn away and, the youngsters laugh just as soon as I rattle the tambourine and call on the spirits. No one asks me to work spells now. So let my ceremonial dress be preserved within these four respected walls."

So I did not meet the last shaman. But this was one case where I was not sorry that I could not carry out the editor's request.

"WE'RE FROM TOOG"

by Nureddin BABAYEV, a writer

from IZVESTIA

Each time I visit the village of Toog I remember the words of the great Azerbaijanian poet and thinker Nizami: "He who has not drunk the sherbet of love and friendship cannot claim to have lived".

Sometimes one little scrap of land can tell a man a lot about the history of a whole country.

To me such a corner is little Toog, tucked away in the impregnable mountains of Nagorny Karabakh, in the Caucasus. Nobody knows how old it is exactly. Some say it came into being a thousand years ago, others think it twice as old. But Gyanjumkishi, an old-timer of 110, says:

"Our Toog is as old as love, brotherhood and friendship, whose bonds have united the people here since ancient times . . ."

I have visited this village on many occasions so I can say that if you really want to feel the full power of brotherhood and friendship, which give people beauty and courage, cross these mountains and the gorge and carry straight on to Toog. You will see for yourselves that the friendship of the Armenians and Azerbaijanians who live there is as firm as the surrounding rocks, as noble as the snow-clad summits of the Karabakh Mountains, as clean and transparent as spring water.

But this was not always so. In czarist Russia, where the backward peoples of her outlying areas were oppressed, Azerbaijanians and Armenians had many bloody conflicts.

The fraternity of Toog is many decades old. I heard its history from an old gardener, Tigran Sarkisyan.

The first time I went to see him I did not ask him a single one of the questions I had prepared. I just sat and listened: his recollections were so absorbing . . .

Tigran had a friend, Mamed Jakhangirov. They were not just friends. They were like brothers. They lived in the neighbouring houses, their yards adjoined, and they shared all their joys and sorrows. The two of them were born on one day. Villagers say that as soon as the echo of the gunshot fired by Tigran's father in honour of the birth of a son and heir subsided in the mountains the village heard the report of the gun fired by Magerramkishi, father of Mamed. Brought into the world together, they stuck together through thick and thin. Together they learned to walk and talk. Then, like their fathers, they shared the harsh common fate of the people. The bey's knout fell impartially on both their backs.

When Soviet power was proclaimed and the land began to be given to the poor, Mamed said:

"Look, Tigran-jan, why should we each cultivate a separate plot? Let's make it one and work it together . . ."

What Mamed said Tigran thought. With the miserable sum Mamed had brought back from Baku, where he had gone to get a living before the revolution, the two friends bought a plough. They harnessed their two bulls to it and set about ploughing their land. Their first crop was excellent — it showed what joint effort could do. In another year they had surplus grain to sell to the state.

When the Soviet Union was building its first collective farms, Mamed proposed that the Toog peasants should all unite. He took his and Tigran's bulls by the ears, led them to the market-place and said: "This, people, is all Tigran and I own together, and we are turning it over to our common farm." Somehow, almost spontaneously, Mamed was elected chairman of the farm, which was given the name of Oktyabr (October).

That was the start of a big undertaking in the village. It was quite a job to do away with outdated concepts and customs, and people found it hard to get used to the idea that what had once been their private property now belonged to them all collectively. At first, they did not have much success, but the most important argument when anyone wavered was the example of the joint work done by Mamed and Tigran. That was why the Toog people say that the friendship of Armenian Tigran and Azerbaijanian Mamed was the first brick laid in the foundation of their present collective farm.

In Toog I learned that Mamed had known the noted Azerbaijanian playwright Jafar Jabarly and that Mamed's story about his village had provided the writer with material for a play, *In 1905*, a tribute to Armenian-Azerbaijanian friendship.

Unfortunately, Mamed is no longer alive, but the farmers still

have warm memories of their first chairman, who kept this position for more than twenty years. In those years Oktyabr began to flourish, its fields became fertile, and its orchards and vineyards bountiful. The Toog people began to live well. Their happiness and well-being are perhaps the best monument to Mamed, though on his grave, on the bank of the stream Guri-chai, another, granite monument has been erected in his honour. On it Toog's best stonemason, Usta Ayrapet, has hewn only two words: "Our Mamed".

Tigran had a host of memories. But he also wanted me to see the present picture of his Toog. Despite his seventy years, Tigran is ready to act as guide to any visitor.

Nestling on the green slope of a high mountain, Toog is quite a beauty. But more important, man has now breathed life into what nature created. When you look down the mountainside you see the distant hills with their herds and flocks — many thousands of sheep, cows and buffaloes. It all belongs to the people of Toog, where before the revolution a poor man thought himself a happy one when he acquired a single cow. On the banks of the mountain river which skirts Toog lie vineyards and abundant orchards.

I made a leisurely inspection of this land warmed by the friendship of people like Tigran and Mamed, brothers in destiny, who started a new life here with nothing but a plough and two bulls. Now their farm bas twice as many combine harvesters, tractors and other machines as all Azerbaijan had in that early period of collectivisation.

In the garage Volodya Pogosyan and Kerim Jakhangirov stood leaning over a tractor engine: it was harvesting time so the machines had to be kept in good working order. Kerim was helping a fellow-worker.

Two lads, Ahmed Aliyev, an electrician, and Armen Grigoryan, a radio-mechanic, were hurrying down the village street. I joined them and accompanied them to the animal farm.

"We've been waiting so long for you!" exclaimed Tamara Abdullayeva, the dairymaid.

At a time like this the dairymaid cannot get on without the electrician and the radio-mechanic: the mechanisation of all animal farm operations was nearing completion.

Work was in full swing all over the place. In the repair shop, Ishkhan Avakyan and his trainee, Tapdyg Abbasov, were putting together an *arba* — a canopied bullockcart — for their farm: not the most modern of the vehicles, of course, but very convenient in the mountains.

Their *arba* will serve for at least ten years without repair. No doubt about it . . .

Next to the workshop a nursery school is being built — only one of the many things being done for children in the village.

The collective farm was having a busy time. Its vineyard workers were harvesting grapes, and barley was being sown. The people were working with concentration, only occasionally calling out to each other. Now I caught Armenian words, now Azerbaijanian.

It took me some time to grasp what language they were speaking: all the villagers speak both from childhood, and it is scarcely possible to say which of the two should be called the native tongue in families like Lyusik Arushanyan's Now she is away, but I was told the touching story about her love and marriage anyway.

There is nothing unusual about it, they told me. Simply that the most beautiful Armenian girl in the village, Lyusik, fell in love with an Azerbaijanian lad, Abbas, and they married. Lyusik became Mirzoyeva When the last war broke out Abbas went to the front and did not return. Lyusik was left with three children and her mother to take care of — the young woman became the breadwinner of the family. Of course, her fellow-villagers helped — the mountain people have a special law providing for that. Now her children have grown up and speak these two tongues equally well. Asked which of the two nationalities they belong to, the Toog people say: "We're from Toog."

On the swift Ataut-chai river, a hydroelectric scheme will shortly be put into operation. Its builders, also Armenians and Azerbaijanians, are as friendly to each other and as closely-welded together as the people of Toog.

LAND OF LONGEVITY

from PRAVDA

Nagorny Karabakh is one of the most wonderful parts of Soviet Azerbaijan.

The Nagorno-Karabakhskaya Autonomous Region, with a population of only 150,000, has 185 centenarians.

The secret of a long life, as the respected elders themselves will tell you, is a compound of love for labour and the land, labour out in the fresh air, a diet that includes plenty of fruit and green herbs and vegetables, a strict regimen of life and total abstinence from alcohol. Many of the old folk have never taken medicines or pills in their life, and very rarely turn to the doctor for assistance. But they are all under medical observation.

Soviet Azerbaijan as a whole enjoys the absolute world record for centenarians, having 840 of them to every million people. The comparable figures for France, Britain and Japan are 7, 6 and 2 respectively.

HARDER AND CHEAPER THAN DIAMOND

Man Outdoes Nature

by **Vladimir ORLOV**

from the book
MEN ARE LIKE GODS

The word "diamond" comes from the Greek adamas, which means "the invincible": the diamond is at the top of the hardness ladder and can scratch any natural material, leaving proud evidence of its superiority. No other natural material, not even the hardest, can scratch diamond.

According to Hesiod and Aeschylus, the chains of Prometheus and the helmet of Hercules were forged from something called adamas. Autocrats of all times have used the diamond as a talisman symbolising unchallengeable power and authority over human beings.

The rarity of big diamonds and the quadric formula of growth of their price as a function of their weight made the diamond attract the largest sums of money ever embodied in a small piece of natural substance. That was why medieval alchemists tried so desperately to make a diamond in a retort.

At the close of the eighteenth century the French chemist Lavoisier dethroned the noble diamond: he burnt it in the laboratory, demonstrating its absolute identity with a common carbon, graphite.

The superhard diamond and the supersoft graphite were identified as one and the same substance. A difference in the disposition of the atoms — in the architecture of crystal lattices — is the only reason for the amazing dissimilarity between the two.

Since then there have been attempts to reverse the process of converting diamond into graphite. But how could the cheap, easily available material used for pencil leads be converted into that rare precious stone?

Many formulas were written and many drawings made with those leads on boards and on paper, and many experiments were staged, but graphite remained graphite.

Scientists turned their attention to diamond mines. They endeavoured to understand the natural processes which had once taken place in kimberlite pipes, natural craters filled with diamond-bearing rocks, and to reproduce them as closely as possible in artificial conditions.

J. B. Hannay of Britain once filled a gun barrel with an appropriate mixture, welded it tight, brought it to incandescence and apparently obtained artificial diamonds. Dr. Crooks exploded cordite in a steel bomb and also "obtained diamonds". Henri Moissan quickly cooled a graphite solution in iron and "obtained diamonds", too. Others stormed the "Bastille of alchemy" with even more light-weight scientific armament.

A comparison of the specific volumes of diamond and graphite revealed a need for compression: common carbon was not so dense as its royal brother. The American physicist P. W. Bridgman tried to subject graphite to the mammoth pressure of 400,000 atmospheres — but at room temperature. That was the last desperate and, alas, unsuccessful attack on the problem solely from "positions of strength".

What experimenters failed to obtain in Cyclopean bombs was discovered by theoretical calculation: a Soviet physicist, Dr. O. V. Leipunsky, ascertained the conditions under which graphite became diamond. High pressures were not enough for this, he said.

To rearrange the structure of graphite to become diamond, it was not enough to squeeze the carcass of that loose grey substance, greasy to the touch, from all sides, not enough to make it denser, reducing the distance between the carbon atoms. These atoms did not have to be brought closer to each other throughout the substance: in some places, on the contrary, they had to be spaced wider apart. One essential was the participation of two opposing forces, pressure and heating, one compressing the substance and the other expanding it. Proceeding from the tenets of thermodynamics, a science concerned with heat and its conversion into other forms of energy, Dr. Leipunsky calculated the areas of pressure and temperature where the microstructure of loose, opaque graphite passed into the microarchitecture of hard, transparent diamond.

To form diamonds, tens of thousands of atmospheres, thousands of degrees were needed. But theory and practice are miles apart. Bridging the vast gulf was by no means a simple matter, and was comparable to the agonising search carried on by prospectors.

Diamond deposits have been discovered in the Soviet Union — in Yakutia. And laboratory methods of obtaining diamonds have been discovered, too — at the Moscow Institute of High-Pressure Physics of the USSR Academy of Sciences, under the guidance of Dr. Leonid Vereshchagin, a Member of the Academy.

One of the puzzling problems that faced Soviet scientists and engineers was how to get the instruments to tolerate not only the high pressures at which materials treacherously changed their properties, but also the high temperatures which softened metals and made them fluid. Now this apparently insoluble problem has been solved.

The instruments designed at this Institute were turned over to an industrial research institute for further improvement with a view to mass production. The solution of the problems involved earned the directors of the two institutes, Dr. Vereshchagin and Dr. V. N. Bakul, the titles of Hero of Socialist Labour.

Now a powerful press produces diamond in quantities of which a diamond mine might be proud. It consists of very hard crystals, which scratch even natural diamond, until recently the symbol of hardness.

No crowns and no sceptres are adorned with Soviet diamonds. The hardest of stones, their job is to increase the power of tools in the hands of the worker. No hard steel can be made, no precision instrument manufactured, no atomic power station built and no rocket launched into space without the diamond.

For Bits, Not Crowns

by Pavel BARASHEV
from PRAVDA

100,000 atmospheres . . . The mind cannot grasp the idea of such a monstrous pressure. Imagine a 100-ton load weighing down upon every square centimetre of your body — like water pressing upon a diver's suit at a depth of 1,000 kilometres. And the deepest ocean depression is only 11—12 kilometres deep.

On my way to the Moscow Institute of High-Pressure Physics I tried to imagine the mammoth press required to produce such pressures. But things proved to be simpler than I had thought.

The Institute's Learned Secretary, Dr. Boris Demyashkevich, pointed to a machine as tall as a man of a medium height.

"This is where we make them."

"You mean diamonds?"

"A small correction is required here," observed Dr. Vereshchagin. "Yes, we do manufacture synthetic diamonds. But, more precisely, we have worked out techniques for the mass production of a polycrystal formation on the basis of the diamond and cubic boron nitride, or PCB, as we call it for short."

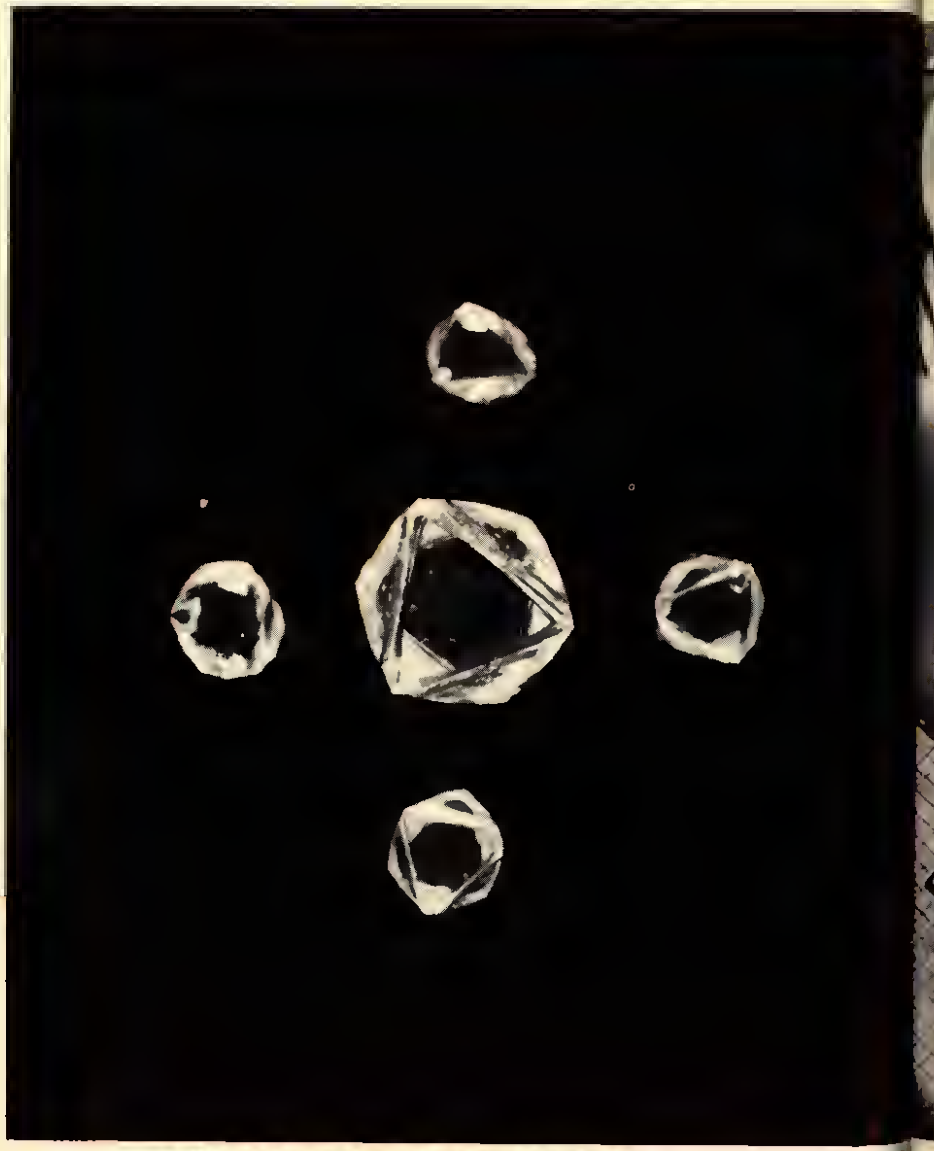
"What are the properties of this PCB compared with those of the real diamond?"

"The PCB is cheaper and, most important, better than the diamond. At least in the sphere of application for which our institute produces them. For steel processing, for instance, it is better — technically — to replace real diamonds by diamond-structure crystals with carbon atoms replaced by atoms of other elements."

I was invited to one of the workshops. Assistant-mechanic Sergei Vlasov put a heavy metal rod into the lathe chuck.

"This is one of the hardest steels, steel used for ball-bearing manufacture," he explained. And the man switched on the lathe.

The dark little grain fastened in the "beak" of the standard cutter-holder lightly touched the



Artificial diamonds — they have found wide application in industry. Page 142 (headline photo): diamond-tipped drilling bit.

With this gadget you can make diamonds and even harder crystals. The method for synthesising them has been worked out at the Moscow Institute of High-Pressure Physics.

surface of the rod. Where the cutter contacted the metal there was a flash like an electric arc. But the cutter went on cutting that hardest of steels.

Vlasov stopped the lathe and gave me the rod.

"Excellent finish," he told me. "It requires no grinding. That would only spoil things. Grinding leaves grains of abrasive dust in the metal. Here we obtain an ideally smooth surface."

But that was not all. At a high speed of cutting natural diamonds react with iron, "are burnt" and become blunt. But not PCB.

Not so long ago experts from a well-known foreign firm visited the Institute. They watched things and mistrustfully shook their heads. The next group of foreign visitors brought along their own steel rod — another sign of mistrust in the achievements of the Institute. When Vlasov's cutter passed over their rod as if it had been butter the visitors rushed to the director's office, where they had left their cameras.

The Institute tested its diamonds at a mine in the Donets Coal Basin. Put into the bit of a prospecting drill, they lost only one-third of their initial 20-carat weight over a tunnelling distance of 40 metres. Employing the usual bit, made of the hardest alloys, the team did only 4 metres in the same time and the bit had to be changed: it was no longer any use.

Man-made diamonds put into bits increase the speed of metal-cutting and drilling and prolong the instrument's service life. And they offer huge savings in other cases, too.

Diamond dies used to bring a lot of trouble and cost a lot of money. These were small heads with tiny holes through which the thinnest of threads (of, say, wire) were drawn. Phillips, for instance, offer a 1.5 mm. diameter die made of natural diamond for £ 700 sterling. But a die manufactured from diamond obtained by this Moscow Institute in conjunction with the Department of High-Pressure Physics and Chemistry of Moscow University is cheaper than the standard cutter-holder.

I stood before an apparatus in which these wonderful crystals are made. The operator puts the source material into the dies and directs it beneath the press. In two minutes he takes out the casting die and picks out from the white baked mass a 2-carat diamond. It all looks so simple, as if there could be no question of diamond manufacture involved here.

But these are diamonds. Synthetic diamonds. They are intended not for crowns but for prospecting bits, not for signet rings but for cutters. They are intended for a variety of technical purposes. They will ease industrial operations and make them still more productive.

The New Soviet Five-Year Plan

Agriculture

In this sphere, as in the past, one of the chief tasks is to increase grain production.

In 1970 the USSR's grain harvest was 186 million tons (for the sake of comparison — in the same year Canada harvested about 26 million tons). In the current five-year plan it is planned to bring up the average annual grain harvest in the USSR to 195 million tons.

Average annual production of meat is to rise during the five years to more than 14 million tons, of milk 92 million tons, eggs 46 thousand million. For this purpose the plan makes provision for the investment of 129,000 million roubles in agriculture between 1971 and 1975. Never has such a vast sum been channelled into agricultural development.

Diagram: by 1975 Soviet agriculture will be producing 20-22 per cent more foodstuffs than in 1970.

Letters to the Editor

Continued from p. 3

national features. It has its own supreme organs of state power — the Supreme Soviet and the Presidium of the Supreme Soviet, its own government — the Council of Ministers, its own Supreme Court; it also has its own Procurator, who is in charge of all the organs of the Procurator's Office. Each autonomous republic has its economic plan and budget. It administers industrial, agricultural and commercial enterprises and organisations, is in charge of house-building and road construction, town and country planning and amenity provision, the health service and social security, primary and secondary education and the development of national culture.

The autonomous Soviet socialist republic is one form of national state which embodies the sovereignty of nations, and in this respect it is similar to the union republic. But unlike the union republic the autonomous republic does not have the right of secession from the Soviet Union, although in appropriate circumstances it may transfer from one union republic to another.

The ASSR has its own representatives on the supreme organs of state power of the USSR and on those of the relevant union republic. The people of each autonomous republic elect 11 deputies to the Soviet of Nationalities of the USSR Supreme Soviet. The number of deputies elected to the other chamber of the USSR Supreme Soviet depends on the size of the population of the ASSR concerned. The fact that there are deputies from the autonomous republics on the Supreme Soviet of the USSR is an important guarantee that their national interests and requirements will be taken into account when matters of general state significance are decided. An autonomous republic is represented on the Supreme Soviet of a union republic on the general principle — that is, in accordance with the size of its population.

Each autonomous republic has its own capital, its own flag and coat-of-arms. Altogether the USSR has 20 autonomous Soviet socialist republics, each of which is within a union republic. In the Russian Federation, for example, there are 16 autonomous republics: the Bashkirian, Buryat, Daghestan, Kabardinian-Balkar, Kalmyk, Karelian, Komi, Mari, Mordovian, North Ossetian, Tartar, Tuvin, Udmurt, Checheno-Ingush, Chuvash and Yakut ASSRs. Azerbaijan has the Nakhichevan ASSR, Georgia the Abkhazian and Ajarian ASSRs, and Uzbekistan the Kara-Kalpak ASSR.

We shall be publishing information about the autonomous republics, and you will find an article about the Tartar ASSR in our September issue.

The Editor

Unfortunately you publish too little political material. Can't something be done to change this?

Franz Luckas, Mainz am Rhein, Federal German Republic

I liked the story about Academician Korolev and the article on the one-party system in the Soviet Union, both published in your January issue. The latter was a great help to me in my discussions with friends at school.

Dominique Macé, Bagnolet, France

I was especially interested in the articles about the Communist Party of the Soviet Union and its links with the people ("Why Is There Only One Party in the Soviet Union?", January, and "The Party and the People", February).

In the latter article it is particularly striking to find that less than half the deputies to republican and local Soviets are Communists, and that Communists make up only 15—16 per cent of the members of trade unions, one of the biggest and most influential organised movements of the workers. What ideological influence the Communists must have, what power of conviction, to inspire 200 million people! And this was seen with particular clarity in the preparations for the Twenty-fourth Congress of the CPSU.

Rudi Bühring, Pasewalk, German Democratic Republic

It is indeed my pleasure to write to you and let you know how pleased I am to have read my first SPUTNIK. I was most impressed with the variety of fascinating articles it contained, all of which I am sure would prove to be stimulating to the American public. I can assure you that many of the American nationals are blind to the many working miracles of the Communist government in the Soviet Union and realise little of its role in the striving for world peace, where my government at times is selfish and self-centered.

I have always admired your country a great deal for its many achievements since the revolution. You have come a long way. Your people are living better than ever before, and you have gained the support and respect of your people. In my country capitalism has caused turmoil, hate and complete disassociation of the masses...

I would like to take this opportunity to congratulate you on the article "Why Is There Only One Party in the Soviet Union?" I particularly enjoyed this most informative article in your January 1971 issue. I hope that in future issues I will see more written on the great revolution of 1917, and on the economy your country enjoys today.

Langston S. Thompson, Fort Lauderdale, Florida, USA

In view of the reguests received from readers we shall give more material about the Soviet Union's home and foreign policy, about economic and cultural development in the Soviet Union, and about the revolution of 1917.

The Editor

We should very much like to see in SPUTNIK something about how the plant was built for the manufacture of Zhiguli cars and how the car itself was put into production. Could you also publish some information about the construction of the Kama Motor Plant, a gigantic enterprise?

S. Rytchenkoff, Bombas, France

You can find some information about the construction of Soviet motor works in an interview with A. Tarasov, Minister of the Automabile Industry of the USSR, in our last issue, in the feature "On Land, At Sea and In the Sky". We shall shortly be giving articles about the motor works in the town of Togliatti and the construction of the Kama motor works.

The Editor

ON THE THRESHOLD OF IMPROVING HUMAN HEREDITY

by Vladimir CHERTKOV
from PRAVDA

What is the object of the Institute of Human Genetics, set up in Moscow in 1970? Here is a talk with its director, Dr. Nikolai Bochkov.

In the director's office, I was received by a dynamic, fair-haired man. I had already heard something about him. The son of a farmer, he had left his native village to study be a doctor.

However, instead of working in a hospital after medical school, Nikolai took a post-graduate course. He was interested in restoration processes in the human organism.

A remarkable future was predicted for him: by the age of thirty he could have got his doctorate and become a professor lecturing on cytology.* But Bochkov gave up his cytological studies for genetics, getting back again into the position of a student and putting off his doctorate by several years.

Bochkov spent a lot of time at the Institute of Medical Radiology in Obninsk, near Moscow, studying the impact of radiation on the hereditary system of man.

Professor Nikolai Bochkov, Director of the Institute of Human Genetics.

Bochkov's thesis for his doctorate was entitled Cytogenetic Effects of Radiation on Man.

Soon after that Dr. Bochkov was entrusted the task of organising and heading an institute of human genetics under the

* Science of the composition and life of cells.

USSR Academy of Medical Sciences.

Geneticists strive to penetrate into the holy of the holies — the secret of mechanisms governing heredity.

Now that science and technology have made extraordinary leaps forward man has every right to expect great discoveries in this field of biology. Geneticists desperately need long lives for their work. Sorcerers, if they existed, would surely prolong their lifetimes: the change of a generation normally takes from 20 to 30 years, and the geneticist must trace the lives of many generations.

"Man is an extremely involved object of genetic study," says Dr. Bochkov. "Our basic method of investigation is hybridological, experimental, and man cannot experiment with marriages. As the outstanding Soviet biologist Dr. Nikolai Koltsov, once said: 'We cannot make Nezhdanova marry Chaliapin* simply to see what children they might produce'."

Man's chromosomes under the microscope.

Indeed, nature is insidious. It imposes ailments upon man already in his mother's womb. But even today, complex analyses of the amniotic fluid may help determine the sex of the forthcoming child as well as detect some diseases that may threaten him in the future.

"However, to identify the disease doesn't seem to help all that much," I cautiously said.

"It's not everything, but it's a lot," Dr. Bochkov replied. "Parents can be warned that they might have a child with a serious nervous or mental disease, and the pregnancy could be terminated in time. Or suppose a family already has one sick child, and his parents are afraid that their next child may develop the same disease... Only the specialist in human genetics will be able to dispel their fears.

"In some people the genes, the hereditary makings of the organism, give no reason for misgivings. Others have to be very cautions. If they are not they may invoke great troubles: some people are predisposed to hypertension or atherosclerosis. They should be careful and take some measures in advance. It is common knowledge that physical exercises, though they do not 'remove' heredity, can change the human organism.

"Human genetics is about to reach a point at which it can improve human heredity by interfering in the action of the genes with resultant new signs in man.

"Let us call this way of preventing hereditary diseases, which is, apparently, going to be a most important one in the future, gene surgery," says Dr. Bochkov. "Improving the shortcomings in some cells will be helped by the 'pure gene', synthesised or isolated from another cell. It will be delivered to its place by viruses harmless to the organism. Perhaps we shall improve genes with the help of chemicals."

* Antonina Nezhdanova (1873-1950) and Fyodor Chaliapin (1873-1938) were famous Russian opera singers.

Laboratory of general cytogenetics. Its chief, Alexander Zakharov, and senior laboratory worker Vera Demintseva studying the delicate structure of the human chromosome.

Laboratory worker Valentina Vashukova on the job in the Laboratory of growth and development.

But science must do more than improve the heredity obtained from previous generations. What if some chemicals, which are so widely entering all spheres of our life, affect future generations? The Institute has been assigned the job of developing a technique for appraising the action of such substances on human heredity. Genetic and hygienic research has already led to a ban on the manufacture and use of some preparations.

Further. The entire world is now worried about atmospheric pollution. Some chemicals, in addition to fouling the air, affect the hereditary mechanism of the cell, causing harmful mutations which can hit succeeding generations. Dr. Bochkov is one of those studying these harmful effects. A knowledge of them will bring closer the

discovery of antidotes.

A little earlier, Dr. Bochkov was engaged in what he calls "inventorisation of the genetic fund of the country": he studied the incidence of births of children with hereditary diseases in different parts of the Soviet Union. In the future, scientists will draw up a genetic map of the country. This work, of tremendous significance, will make possible the correct planning of aid to sufferers from hereditary diseases: in one place hospitals of one type are more necessary, in another, hospitals of another type.

Genetics is an amazing science. What hereditary signs will help scientists, and later, doctors, to make precise diagnoses of diseases? What if the pattern of the fingers and the colour of the eyes are associated with some particular disease?

In the future, the Institute will study the genetic essence of man's mental activity.

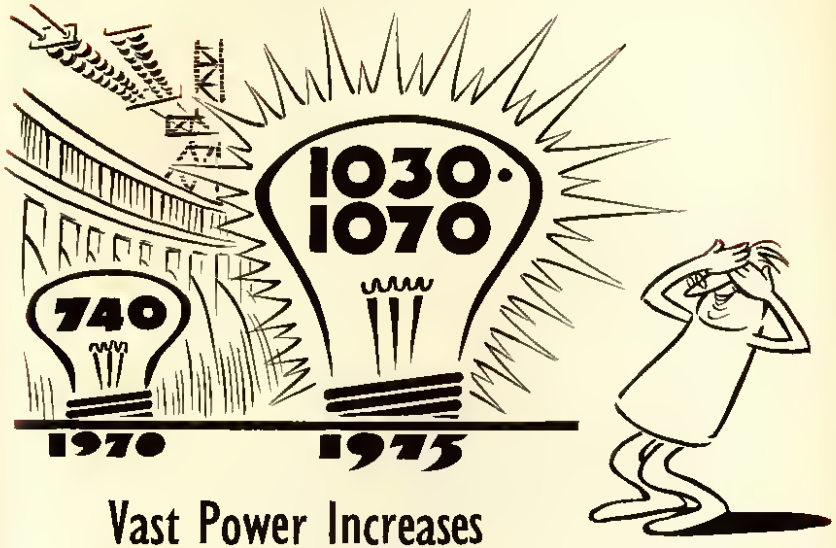
"Without a knowledge of human genetics," says Dr. Bochkov, "we cannot be quite sure of man's actual abilities or vocation. In addition to morphological, biochemical and physiological features, man inherits some features of mental activity, abilities and emotions. These are improved or worsened by environment and training. This all confronts genetics, as well as psychology and education, with the vital responsibility of discovering how to ascertain man's inclinations and talents, the direction his vocational training should take.

Lydia Romanova, senior research associate of the Laboratory of growth and development.

A student from a Moscow college, Vyacheslav Kolodko, doing practical work at the Institute.

Naturally, interference in the hereditary nature of living organisms is a two-edged weapon. It may be used either for the benefit or to the detriment of man. That makes it binding on the scientists and governments of all countries to exert all the more effort to make the work of geneticists serve progress, to help them give doctors a powerful new type of instrument in the fight for human health.

The New Soviet Five-Year Plan



Vast Power Increases

By 1975 new power station capacities amounting to 65-67 million kilowatts will be put into operation. Of this 12 per cent will be at atomic power stations.

Each Soviet five-year plan prepares the ground for future plans. The long-term programme (up to 1980-85) envisages the building of more atomic power stations — above all in the European part of the country where fuel supplies are limited.

Within 10-12 years atomic power stations with a total capacity of 30 million kilowatts will be put into operation. This will make it possible to cut capital investments in the coal industry and save a further 3,000 million roubles in the national budget.

The increase in power production will facilitate, among other things, more active measures to modernise and mechanise agriculture. The population will be compensated for the outlay on power stations by large quantities of goods and foodstuffs.

Diagram: power production in the USSR — 740,000 million kilowatt-hours in 1970;
1,070,000 million kilowatt-hours in 1975.

World champion Vladimir Gulyutkin.

from the newspaper KOMSOMOLSKOYE ZNAMYA (Kiev)

by Sergei BELOV

THE CASE OF THE CASUAL WRESTLER

"He's always been interested in wrestling."

That is what you might expect to hear of Vladimir Gulyutkin, the Soviet middle-weight free-style wrestler. But it would not be true. He did not go in for wrestling as a boy, nor later as a youth. Neither at his secondary school nor at the Sevastopol Shipbuilding Vocational School which he entered in 1959 was wrestling a popular sport. A good gymnast was admired, but not so a good wrestler.

Vladimir, a powerfully built youth, was a "big man" in basketball and volleyball, in the discus throw and in the shot put. But he just did not shine on the horizontal bar. This presented a challenge, and Vladimir got down to gymnastics in real earnest. Later he excelled in the decathlon.

He took up wrestling accidentally, quite casually, one might say, but that proved to be a turning point in his life.

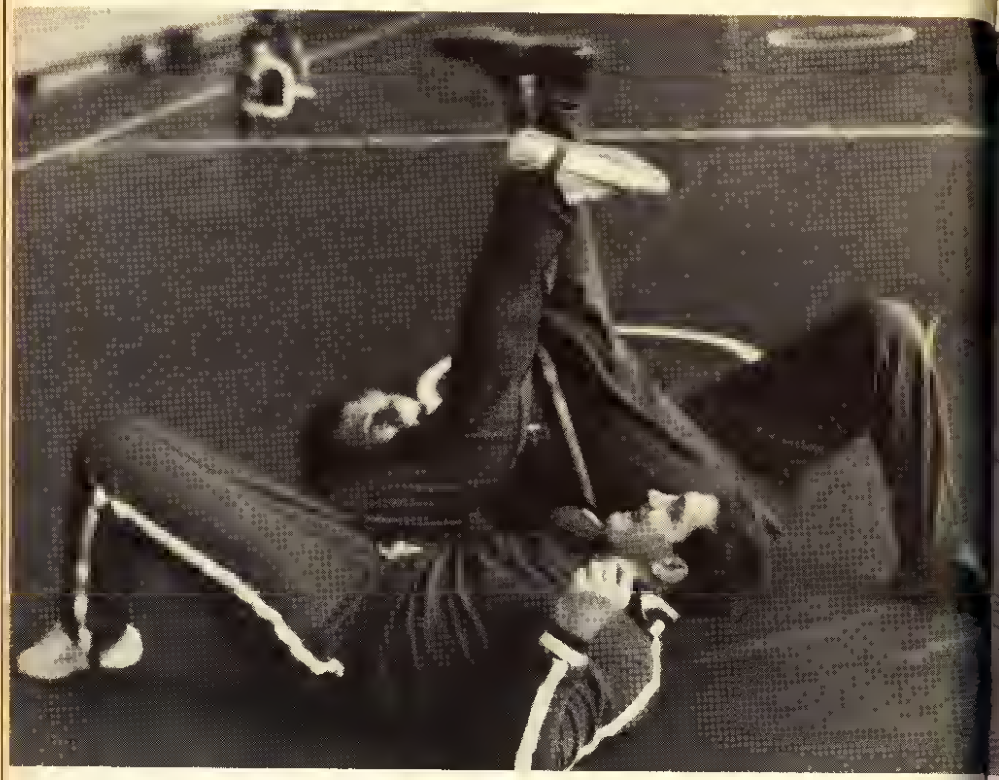
In 1963 Vladimir was called up, and he found himself in a naval unit. His build and strength were soon noticed by the athletic coaches there. Shortly before the free-style wrestling championships of the Sevastopol garrison they talked him into taking part. In the few days left before the contest he was briefed on the rules of free-style wrestling and given a few workouts.

With that casual priming he was let loose onto the mat. What followed stunned the coaches and puzzled the wrestler himself. He took all comers one by one and pinned them to the mat. The list of his victims included even one sizable name in free-style wrestling. Coach I. M. Bocharov saw at once that Vladimir was unquestionably All-Union material, and he sat about moulding that material into shape.

Less than a year later Vladimir Gulyutkin won his first gold medal and the title of champion in the junior league. He also took the Ivan Zaikin prize, named so after the famous Russian wrestler.

After he served his term in the Navy and was discharged, Vladimir tried for the Kiev Institute of Civil Aviation Engineers and was accepted. His field was to be aircraft maintenance and aircraft engines. Now he had his hands really full: he was not going to be a mediocre student — he would devote all the necessary time and effort to studies — and he was not giving up wrestling. That required considerable willpower and self-discipline. Vladimir showed he had both.

In 1966 Vladimir Gulyutkin won second place in the USSR Championships in Alma Ata (Kazakhstan). First place went to Shota Lomidze, holder of many European and world titles. Bouts with such an experienced wrestler were an excellent school for Vladimir. But "Iron Shota" would stand a long time yet in the path



On the training mat it's not so important who is on his back ...

of the young wrestler denying him the laurels of champion.

Finally, the day came when Gulyutkin defeated Lomidze, with a count of 5:0. It was in 1968 in Kiev, capital of the Ukraine. For the first time Vladimir Gulyutkin became USSR Champion in the middle-weight division.

At the last national championship, however, he lost the title to Ivan Yarygin, a student at the Krasnoyarsk Teachers' Training College (East Siberia). To do Vladimir justice, he had not completely recovered from an injury, while his opponent, a young but rapidly progressing wrestler, was in excellent shape. They met next in the USSR Cup finals held in Leningrad. Fans and experts alike agree that the Gulyutkin versus Yarygin match was the central event of that tournament.

Yarygin's chances were better

... but it's quite another matter in a contest. Left: Vladimir Gulyutkin.

in that he only needed a tie to place first. Gulyutkin had no such alternative: only victory would give him first place. Towards the end of the first three-minute bout he scored two points by throwing his opponent over his back. In the second bout Yarygin managed to force Gulyutkin to his knees. The count became 2:1. For some time Yarygin stayed on top, attacking his opponent aggressively all the time. Then came a lightning-speed counter-attack from below, and Gulyutkin threw his opponent over and pinned him down.

Gulyutkin puts on a fine performance on the mat, and he wrestles wisely, attacking his opponent from the most unexpected positions. He is a marvel at "pinning 'em down" — even formidable opponents at major international contests. He represented the Soviet school of

wrestling with honour at the Skoplje and Sofia European Championships in 1968 and 1969. But 1970 proved to be a peak year for the 28-year-old athlete: at the world championships in Edmonton, Canada, he won the gold medal, in the final match defeating the US strongman, Larry Christoph.

A few months later Vladimir graduated from the Institute, receiving the diploma of an aviation engineer. He lives and works in Kiev, and is writing his dissertation for his M.Sc.

GIANT BELUGA

Fishermen of the Kirov Collective Farm in the Astrakhan Region caught a beluga, a variety of sturgeon, weighing 1,770 pounds. With considerable effort it was delivered to the fish-packing plant, where it was found to contain 245 pounds of black caviar.

From the newspaper KOMSOMOLETS KIRGHIZII

"STURGEON NO 47 CALLING . . ."

Soviet scientists devised another means of observing and recording the migration of fish — a tiny radio-transmitter. It weighs only five ounces and can easily be attached to a large fish: 186 sturgeon carrying such transmitters have already provided information on how the dam of the Volga Power Station has affected their movements. To trace the migration of bream and pike, lighter transmitters, weighing about one and a half ounces, have been constructed. The latest models weigh only six grammes — less than a quarter of an ounce.

From the magazine ZNANIE—SILA

A NEW OCEAN PROBE

The device resembles a "sea serpent" as depicted by illustrators of children's fairy tales. It is 2,624 feet long and encloses highly sensitive apparatus which detects oil, gas, and other mineral resources on sea and ocean bed. This device can probe the sea at any depth by using reflected and refracted waves. Created by a group of Soviet designers, the device has made the work of sea geophysicists much more effective.

From the newspaper KOMSOMOLETS TAJIKISTANA

Book Section

by Irina RAKSHA

EURASIA

A Story

from LITERATURNAYA ROSSIYA

"Across the Altai steppe, astride a lathered stallion, past me streaked an 'Amazon'. That was how I first saw Irina Raksha . . ." the poet Mikhail Svetlov wrote in 1963. "She was then seventeen and no more a writer than I am now a rider. But I know why that meeting with her comes to mind: because the essence of Irina is movement and indefatigability. If you wake her up in the middle of the night and say: 'The Polar bears in the Arctic are missing you,' she would, stepping into her shoes, ask: 'What's the best way to get there, by train of by plane?' . . ."

After finishing school in Moscow, Irina entered the Institute of Cinematography in Moscow. Her first book of stories, MEET ME IN TRANSIT, came out in 1965, while she was still a student. Her second, A RING WAS ROLLING, appeared recently. Three of her stories, INDIAN SUMMER, THE LETTER and BELIEVE IT OR NOT, have been made into films.

In Pushkin Square, on a wall wet with dripping snow, he at last saw a signboard saying, "Typist N. V. Korneyeva, 4th floor, Apartment 8, entrance through courtyard."

He quickly ascended the some-time-white, sloping steps of a large, echoeing staircase. The tall windows of the half-landings were dusty, and smelt of cats. He did not like these old buildings. They clashed with his concept of what buildings should be like in Moscow, especially in the centre of the city. As he climbed he shifted his attache case from one hand to the other, fearful that at the threshold he would again hear the refrain: "No, no, young man, I have my old customers and I am swamped with work. Try Tverskoy Boulevard, perhaps there . . ." In Tverskoy Boulevard, through the door chain, he heard: "Oh no, my lad, not today! I have a lot of work as it is . . . You say it's urgent? And whose job isn't? Ours is an age of urgency!"

He rang the bell and heard a voice behind him ask: "Who do you want?"

From below, a woman in a black coat and a beret, carrying a bagful of groceries, was mounting the stairs in his wake.

"I want to see Korneyeva."

She stopped on the step and looked at his shaggy three-cornered hat, his coat and his fur-lined boots.

"May I inquire who you are?"

"Shulgin's my name," he said simply. "I want to have some stuff typed."

"Oh, I see." She immediately lost interest and stepped to her door. "I never seem to get around to removing that sign. Mind you, it is bolted down." She was busily rummaging in her handbag. "The thing is, you can't see her."

He was upset.

"Perhaps you could give me some other address then?"

"I really don't know any." Finally she had found her keys and tinkling them, proceeded to open the lock.

He picked up his case: there was nothing else to do.

"You see," the woman began and stopped. She was exasperated, for her door wouldn't open. "You see, she's not here any more. She died in winter. This damn key!"

He did not know what to say and felt awkward.

"Let me try. Perhaps I can help you?" he suggested.

She held out her key-ring.

"Please, the yellow one. It gives me trouble every blessed time."

He examined it and almost effortlessly straightened it.

"Now it'll work," he muttered and turning away, hurried down the stairs.

He was walking down the worn steps, wondering where to go next. After all, there must be some typing-office in Moscow. A man cannot spend all day hunting when he has a mere 24 hours at his disposal! He had almost reached the third floor when he heard:

"Listen, young man," the woman leaned over the banisters and called, "have you got a lot?"

"Of what?" He didn't understand.

"Of text."

"Well, not so much," he shrugged. "A notebook."

"Well, come back then." Saying this, she disappeared.

He was in luck! He flew up to the fourth floor and stepped through the door.

His eyes swam for a moment. The high-ceilinged room was crowded with furniture. The walls were hung with numerous paintings in gilt frames and varicoloured plates, and knick-knacks of all kinds stood on the piano, the cupboard, the table.

"Why on earth keep so many needless things?" he thought. But in the midst of it all, over the table, he saw a map. The two hemispheres of the world, like two blue eyes, gazed seriously into the room.

"Take a seat." She vanished behind the wardrobe. "You must be hot in a warm hat like that?"

He left the remark unanswered.

"True enough, I am not a professional typist," she said from behind the wardrobe. "But still, show me what you've got." She reappeared looking unrecognizable. She was a young woman, of perhaps his own age. She wore a white blouse, and her short dark hair reminded him of his first schoolteacher. "Here," she said, "put your case on a chair." He had his case open and was looking for his notebook.

He wanted to step forward but was afraid he might smash something.

"That's all right," he said, handing her his notebook. "If I'd known that typing was a problem in Moscow I would have had it typed in my own office."

"Where's that?" She opened the notebook.

"Aktash, in the Altai. Perhaps you've heard of it."

She didn't want to offend him.

"I think so . . . on the radio."

"That's right. Last month the radio reported it when we took on production commitments."

"You write a legible hand."

"Oh, yes."

"And the text isn't technical."

"No, it isn't." He was zealously following the expression of her face. "You see, it's . . . poetry." He blushed.

But she did not laugh. Nor did she even smile. She smoothed her short hair and seeing his enxious eyes, said seriously:

"Very good. Leave it and come back in a day. You want three copies?"

"What do you mean in a day?" He did not understand her. "I need it today."

"Today? How can you have it today, my lad?" Immediately, she seemed to him like that lady on Tverskoy Boulevard. "It's quite impossible!" She began to take out of her bag a loaf of bread, cheese and a bottle of milk. "It's about 40 pages, and I am not a typist. I simply wanted . . ."

"Then give it to me." He took a swift step forward and repeated: "Give it to me." He removed it from the table. "And I really thought you would . . ."

"Don't get so het up." She pushed away her handbag. "No one else will do it for you in one day . . ."

"Never mind. I'll do without it." Puffing, he shoved his notebook back into his case.

"Wait. All right. I'll try. Tomorrow I have no classes. I can't promise to do it quickly, but toward nine call me."

He heaved a sigh of relief. From his squatting position he looked up at her. She seemed to him so clean and white!

"I'll give you my telephone number." She leaned over the piano. "I'm doing it because my mother would do it if she were alive. She always helped people in distress."

Opening the door, she let him out onto the staircase.

"Ask for Zhenya when you telephone." She smiled. "Don't you feel hot in a hat like that?"

"Please don't lose my notebook," he warned her.

Laughing, she slammed the door. But her laughter floated down the stairwell. "What's she on about my hat for?" he thought. "It's a perfectly ordinary marmot fur hat."

It was spring. He strode down a broad street past the monument of Yuri Dolgoruky towards the Central Telegraph. In the Altai, all was still buried in snow but here the asphalt was almost dry already and puddles of water glistened under the metal lattices surrounding the trees. How many times in Aktash and even earlier, as a student in Tomsk, and earlier still, as a boy in the Altai village of Srostki, he had dreamed about going to Moscow! He had read about Moscow and seen pictures of it and heard a lot about it. But he had never set foot on its streets and had never seen it with his own eyes. In the square, blue-grey pigeons waddled around the monument. They lit on the shoulders of the founder of Moscow as if he were an old friend of theirs. While the Altai pigeons are wild and mostly white. On freshly ploughed soil they look so beautiful!

He was happy to recognize the huge tall buildings around the Moscow City Council. They fitted his picture and he wondered who lived in them. Vasya saw blinds behind windows and some open window vents. Cheerfully he imagined calling on some family, introducing himself and having a chat over a cup of tea, and they would be glad to talk to an engineer from the outback. As in Aktash, where people are delighted at any visitor. But the absurd idea made him feel sad. Here, in Moscow, everything was strange, cold and had nothing to do with him. He loved Moscow but Moscow did not love him. That was depressing. Moscow did

not even know about the existence of Vasya Shulgin from the Altai, who was walking through her streets and had his claims on her. In the editorial office, his poems had not been accepted. They were not even read. They had to be typed first, he was told. And the Mayakovsky Museum was closed. And, most important, at the Ministry he had been refused new high-efficiency rotary rigs.

He had had difficulty getting this assignment. The chief engineer, Lashkov, had sent him in place of himself. He had sent Vasya, a budding expert, because he had hoped that Vasya would handle the job, especially in view of the fact that they had already pledged to overfulfil the plan. Now this refusal was quite unexpected!... Vasya called upon one executive after another trying to prove how badly they needed those rigs. In every room he placed his papers on the desk and, with vexation, had to take them back. His appeals took him ever higher and he rose, floor by floor. On the 16th floor, gloomily stepping out of the lift, he suddenly saw a window. Behind that broad clear window he saw a panorama of Moscow spreading away into the distance in a blue haze. He was astounded at the extraordinary picture and all his troubles immediately vanished from his mind. Vasya walked up to the window, leaned the palms of his hands on the glass and stood like that for a long time staring at the scene below. Birds, flying over the city, singly or in flocks, must see the same picture, he thought: the houses, the snow-bound public gardens and the people...

Then he made another tour of the Ministry departments, in an effort to obtain the rigs by repeated exhortations. But he no longer argued. He merely looked at the wide shining windows and wondered: How can people work here? How can they concentrate when such beauty lies beyond the windows?

At last, in their section of the Ministry, he was told: "All right, you'll get your rigs in the third quarter of the year." It wasn't good, but better than nothing. All he had to do now was to ring Lashkov in Aktash and ask for further instructions.

He recognized the Central Telegraph from a distance and instantly. He identified it by its huge "forehead" and its blue globe, which resembled the eye of a Cyclop. Satisfied, Vasya made for the street crossing.

Zhenya lifted the heavy typewriter from the window-sill, carried it to the table and took off its oilcloth cover. It was their good old Continental. She ran her fingers over the keyboard. What a fantastic amount of text had gone through this typewriter during her mother's lifetime! So many articles and materials of all kinds.

It was still daytime but Zhenya switched on her desk lamp. She took out some paper and recalled that the last time she had used the typewriter she had typed a plan of her lessons for the third quarter of the school year. She leafed through the brown notebook. On the first page a confident hand had written: "V. Shulgin." An eccentric fellow, she thought. She calculated that at 20 kopecks a page she would earn nine roubles. She rolled three copies for the first page into the carriage.

Inside, the Telegraph building was light and clean. The glass in the long row of telephone booths sparkled. Now and then the loud voice of an invisible woman would call out: "Nalchik, twenty-second," "Tbilisi, seventeenth." It was hot. Whatshername... Zhenya, was right about his hat. He took it off and placed it on top of his case.

He would have a long wait for his conversation with Lashkov. Maybe an hour, maybe two. Getting in touch with Aktash was an involved, multistage process. The Moscow operator had to make connections with Barnaul, Biysk and Gorno-Altaisk before she could reach Lyusya, her counterpart in Aktash. Lyusya would rouse the chief engineer. At that hour everyone would be asleep in Aktash and only the ore-mine in the mountains would still be humming with work.

"Tbilisi, eighth." Why does Tbilisi get called so often, he wondered. In Aktash, Lashkov, to avoid wakening his wife, would cautiously tiptoe to the phone to answer Vasya's call, and standing barefoot in the corridor say in his usual low voice: "Lashkov here." As chief engineer of the mine, he got telephone messages day and night. But now he would suddenly have a call from Moscow. And he would be happy to hear the voice of Vasya, the young expert. But the young expert would pour cold water over him. Then Lashkov would almost cry into the receiver: "Vasya, how could you fail? We have to wait until the third quarter? Why not the second or at least in May? Then he would say to Vasya: "You know what? Go to Burakov. He'll help at once." And Vasya would sigh: "But it's Burakov who promised the third quarter."

The typewriter was dryly chattering in Zhenya's room. The icicles of the cut-glass chandelier quietly jingled under the ceiling. A shawl over her shoulders, Zhenya was typing away without looking at the keyboard, her eyes glued to the manuscript.

The more she typed the more excited she became. Vasya's poetry enchanted her. The lines ran fast. Meanwhile, behind the glass of her cupboard a porcelain Japanese boy shook his head, as if a far-off wind from the Altai had swirled into the room.

The page came to an end. She stopped typing and started reading. Finally, she put in four sheets of paper for the next page. One would be for herself. She re-

gretted having begun with three. Again, her eyes gazed into his notebook as they would into his soul.

He left the telephone booth wet with perspiration. Everything was just as he had expected, except that Lyusya had located the chief engineer not in his bed, but in the mine office. And he had not complained and had made no requests but had only tried to convince Vasya not to be too upset and to come back as soon as he could because they would be head over heels in work until the third quarter.

In Gorky Street evening had already fallen. The windows and the street lights shone. That morning, from his hotel in the same street, Vasya had taken a taxi to the Mayakovsky Memorial Museum. He got out in a small lane beyond Taganka and stood for a long time on the pavement, his case at his feet. It was a serene-looking two-storey pink house with trees trembling with cold behind low cast-iron railings. Vasya knew everything about that house. At least everything he had been able to read about it in books. Now the house itself watched him with its row of dark windows. It was a chilly, cloudy day, the kind that are so frequent in spring. Hurrying past were factory and office workers who started work at an early hour. Their footfalls echoed through the side street. Vasya quietly stepped into the courtyard and on the glass of the closed door, read: "Tuesday, Thursday, Saturday, from 12 till 20 hours." And it was Monday.

He stepped away, turned to face the house and looked into its sleeping windows. The end two on the second floor were the windows of the poet's study. Vasya knew what the desk and armchair that stood in the study and the green desk lamp looked like. Once upon a time that lamp had been lit in the evenings and the window had turned deep sea green. In front of the house grew lime-trees, with branches stretching toward the grey sky. Vasya stared at them and suddenly saw Mayakovsky. He was standing in the wind, amid the bare trees, his hands thrust into his coat pockets, lost in thought. The poet was quite near Vasya, beside a frozen but thawing flowerbed and the wind lifted the collar of his coat. That was how the two of them stood facing each other — Vasya in his shaggy warm hat and Mayakovsky, who was only a bit taller, on a pedestal of black granite!

On the piano, Zhenya was quickly sorting the copies. First, second, third and the brown notebook on top. The fourth she carefully put into her desk drawer. The clock already showed nine, and full of excitement, she listened to the sounds beyond the door. But the telephone did not ring. She threw off her dressing gown and slippers and dashed for the wardrobe. Her first impulse was to put on

the grey dress with mink trimming. But that might seem too dressed-up or festive. The black one with white lace would be more suitable. But it made her look too thin. What about the blue one? She was fingering her dresses in the wardrobe as she would leaf through a book. And she would wear her high-heeled shoes. That would improve her figure. However, Zhenya took out her black dress, held it up against her and studied herself in the mirror. She was one of the few women who held no illusions as to their looks. Now, in addition to herself, she saw in the glass her mother's old Japanese figurine. He seemed to shake his porcelain head with a look of reproach. Zhenya felt nonplussed and stepped back. Why am I doing all this? she asked herself. Now he'll ring up and I am looking like a complete idiot . . .

But he was not intending to telephone her first. He walked past her mother's old signboard, under the archway and into the courtyard, which was already quiet and full of crunching ice. He felt uneasy. He even berated himself. Now this woman, whom he knew nothing about, had read each one of his lines and knew each one of his thoughts. Why had he started all this, after all? His poetry was weak. That he knew. Only Lashkov and his wife in far-off Aktash and people in his own village could spend whole evenings listening to him. Why had he thought that the people in the editorial office might like it? They had oodles of such poetry. He saw it himself in their bookcases. Now he would take his notebook away, pay for the typing and be off . . .

Stepping into her room, Vasya tried to discover from the expression on her face whether or not she liked his poetry. She wore

the same white blouse she had worn in the morning and gently threading her way between the furniture she tried to avoid looking at him, and he immediately concluded it was no good.

"Here, it's ready, in three copies."

They stood on either side of the piano.

"Of course, here and there you may come across slips," she said in a soft colourless voice. "But check the text. I haven't had time to do it. It came to 38 pages."

He put the typing into his case, which swelled so he could hardly close the lid.

"Now," she said, "let's have tea."

She pities me, he thought.

"No thanks. I have to go to the airport. My plane leaves at twenty minutes past midnight."

Her face brightened and she said happily: "But you have an awful lot of time yet! Take off your coat. I'll have tea ready in a minute." And she began to set the kettle.

But he took his hat:

"Never mind. I've left the money for you . . ." And he fell silent, because he saw that her hands had dropped and hung motionless and that she herself was somehow wilting. "Strictly speaking, I really have time. You're right." He shifted from one foot to the other. "But I feel awkward. After all, we are strangers."

She smiled and softly said: "What do you mean, strangers? Remember? You put it very well — 'More and more I believe that fairy-tales were meant to be' . . . or . . . 'green and pink the days float over the world' . . ."

It was the first time he had heard his own poetry recited by another person. It was so pleasant and unexpected that he immediately felt warm and snug in that light high-ceilinged room, amid all its blinds and knick-knacks. And his diminutive hostess was clinking the tea things.

"I have some jasmine-scented tea from Korea. I am sure you've never tasted such tea. The husband of a friend of mine is a newsreel cameraman and does a lot of travelling. So she sometimes treats me to things he brings back home."

They sat at her round table, under the chandelier, sipping tea scented with jasmine blossoms.

"No one has used this glass holder for a long time," she said, smiling sadly.

He cupped the big, warm glass-holder and sat listening to her.

"I envy all people who travel. I've never been anywhere, except when I was practice-teaching in a rural school." She ladled out some jam for him. "Last summer I promised my pupils that we would go to the Volga but I could not go because of my mother." Her hands were small but she had very deft fingers. "I have 32 children in my class."

"You must have a difficult

time."

"It happens. The other day one of the boys tore up a map of Eurasia. Now we'll have to hold a meeting to discuss the case. I know who did it, of course. He's a real scamp and completely out of hand." She smiled. "Yesterday they wrote a composition, and you know what he produced?" She walked over to the window and leafed through a pile of notebooks. "Here it is: 'Pechorin's pessimism, his cynical attitude toward the sacred and his cold scepticism bear the imprint of rationalist reflection.' Can you imagine? And the phrase is written without a single error!"

"I was also a scamp in my day." He smiled, tinkling the teaspoon in his glass. "And I was a poor student, too. But from childhood Eurasia always seemed to me to be a yellow spot, like a camel lying in a blue sea."

Thoughtful, Zhenya resumed her seat at the table. He glanced at her. Her hairdo and white blouse were very becoming.

Vasya looked at the piano.

"Do you play well?"

"No, I don't play at all." Her face suddenly grew serious. "It's a family relic."

"Did your mother play?"

"No. Father did. But that was before the war, so I never heard him play. Shall I pour some more hot tea?" She touched the china teapot.

"Please do," he said cheerfully. "The tea's excellent. I've never drunk such tea before." She was pouring the tea mechanically. He felt like cheering her up. "In general, I like Moscow. People here seem to be so fond of animals that they even carry them in their arms." That evoked no response from her, and he added: "The Moscow dogs will soon lose the habit of running."

"You're joking. And I myself thought of getting a cat."

"An ordinary cat?" He made a wry face. "Better to get yourself a dolphin. Training dolphins is so fashionable these days." He gave an enigmatic smile. "What if I send you a snow leopard from the Altai?"

She laughed, covering her face with the palm of her hand, precisely as a little girl would. Again, behind her back he saw the two large hemispheres of the earth, which were looking straight at them, into the room. Some place on that right brown eye-pupil was the Altai and his mine.

Vasya stood up.

"Now, it's time." He smiled at Zhenya.

She rose, too. He heard the tinkling of a cup. A bit distractedly she asked: "So you're leaving? . . . And what about your poetry?"

"My poetry?" He shook his fur cap and sighed. "It's really nothing much."

Nervously, she watched him don his overcoat.

"Why, I don't think so." She quickly stepped up to him. "Your verses ought to be shown to editors. By all means."

He grinned and wrapped his scarf around his neck.

"I'll do it some other time." He picked up his case.

"Why some other time? Shall I do it for you? I've made an extra copy."

He felt shy: "Oh, why did you bother yourself?" He tried to avoid looking at her lit-up face and her excited big eyes. Averting his eyes, he said: "Don't scold that boy too much... The one who tore the map. He didn't mean to do it."

Slamming the heavy door of the corridor behind him, Zhenya flew back into her room. Now everything seemed different to her. As if the walls had spread and every minor thing had filled with light and begun to speak. She lowered her hands to the lid of the piano. In its glossy dark surface she saw a reflection of her face. Perhaps for the first time in her life she regretted that she could not play.

It was a frosty evening. Vasya was walking down Gorky Street. It was brightly lit as though for a holiday and he breathed easily. The thought of having to leave this city in two hours made him feel sad. For the last time he would watch it from aboard the plane, all spangled with tiny lights, like a smouldering campfire. Then, all night long, the dark horizon would swim opposite the direction of the flight till at last day broke over the boundless expanses of snow. Vasya was passing glowing shop windows and entrances to buildings. Poetic lines, word after word, lightly changing order, sprang to his mind, following the rhythm of his steps: "The magic, smoky city slept when like a striking match the jet flew up..." He should have stopped and jotted the words down. But poetry came so frequently to his mind and he so seldom took the trouble to commit his lines to paper...

Down the deserted street Vasya slowly walked in the direction of the centre, the very heart of Russia, Red Square. It had occurred to him back in the daytime but he had thought he would rather gain his first impression of Red Square at night, when it was still, when its towers were illuminated and when he could hear footfalls and the chimes.

Thin ice was crunching under his feet, and over the housetops the moon was swimming through the dark sky, distinct as in the country. Wherever he looked hundreds of windows radiated honey-coloured light. Behind each window went on its own life, with its own cares and concerns. But in all this sea of windows, there was now one behind which he was no longer a stranger. He could now drop in there and without ceremony, have a cup of tea — precisely as in the Altai.

Lenin Square, Alma Ata, capital of the Kazakh Soviet Socialist Republic.